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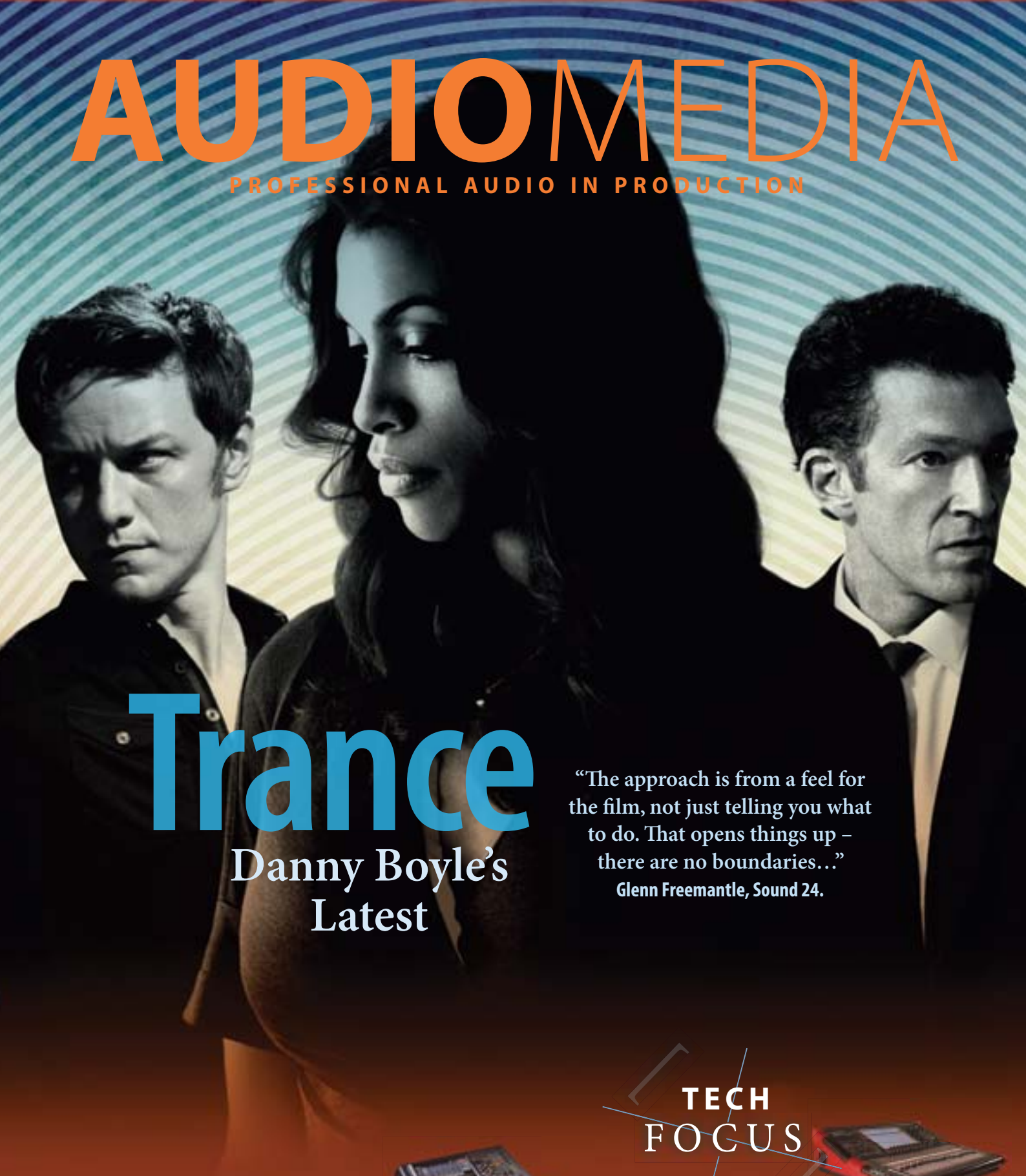

Trance

Danny Boyle's Latest

"The approach is from a feel for the film, not just telling you what to do. That opens things up – there are no boundaries…"
Glenn Freemantle, Sound 24.

TECH FOCUS

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The new... Rack-Pack

The all inclusive 72 mic input system at a special introductory price.

DiGiCo has 'Supercharged' the award winning SD9 with a significant expansion in Channel count, Dynamic EQs, Multiband Compressors and Matrix, and the addition of DiGiTuBes, Reorder of Busses and Multichannel inputs (formerly only available on SD7).

Further new features include an expanded Aux Panel, increased Dynamic functions such as a Duck option and expander for the Gate, a De-esser and two types of Knee for the Compressor. There are also new FX types with multitap, ping pong and stereo delay, with different delay times for left and right. A warmth button is provided on each channel for analogue emulation and two types of EQ have been added (Classic and Precision).

Plus, the SD9 now features Sets (previously only available on SD7T), which has been enhanced to allow for 'Set Spill' allowing the creation of Sets with easy changing of the console layout to display members of that Set.

And if that wasn't enough, to coincide with the Supercharged launch, DiGiCo is offering the Rack-Pack, a 72 mic input system at an introductory total system price.

SD-9 Supercharged Rack-Pack.

SD9 SUPERCHARGED

SD9 Rack-Pack Features:

- 48 Flexi Channels (Equivalent to 96 channels of DSP)
- 47 Busses made up of 16 Flexi Busses plus L/R, L/C/R Master, 2 Solo Busses, 12x8 Matrix
- 8 DiGiTuBes Available
- 8 Dynamic Equalizers
- 8 Multiband Compressors
- 8 Digital Effects
- 16 x 31 Band Graphic EQ
- Multi Channel Folding
- Reorder Busses
- Two D-Rack Stage Boxes
- Two Digital Snakes

DiGiCo

www.digico.biz

DiGiCo UK Ltd. Unit 10 Silverglade Business Park, Leatherhead Road, Chessington, Surrey KT9 2QL. Tel: +44 (0) 1372 845600

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Dogs, horses, hawks –and oddly, koalas – form a small part of the menagerie behind the terrifying dino sounds in Spielberg's ground-breaking Jurassic Park, KEVIN HILTON discovers.

CSI, the US-based drama franchise based on the surprisingly exciting exploits inside a police forensics laboratory, has some fantastically imaginative GUI designers. In many respects, they throw out what's possible and imagine what would be ideal – they get to make the 'wouldn't it be great if..." conversation come true. For example, they can come back from a crime scene and soon after display a detailed, three dimensional, explorable model of the crime scene in mid-air that the user can manipulate with the 3D equivalent of the smart phone swipe. They can zoom into details, explore hypothetical bullet paths, and more. Then they go and do the same with the victim's body. Don't let's get started on audio and visual enhancement technologies....

Anyway, the point is that in that fictional world they have dared to imagine would be an excellent way for a forensic scientist to go about their job, and they slotted it into a pseudo-real-life drama in such a way that it's not a gimmick – it fits in as a credible tool.

I don't know how many times a week engineers, producers, editors, and the like think 'if only I could do it this way', or how many radical new interface designs have been filed under 'nice, but too risky'. There have been some excellent mini-steps, with button arrays and touch-sensitive pads, and so on, but in the core activities we still represent a mix engine on a screen, for example, with what is essentially a picture of an analogue console.

There are probably many things in our work that are just fine the way they are, but the intensely creative and multi-faceted act of something like a full mix surely now deserves more than faders and knobs? Why are we still throwing the full force of decades of progress in processing, screens, graphics, control, and more at making a fader? There should be colours and mid-air manipulation; there should be 3D glasses and multi-touch monitors everywhere. I want my console to look more like a lava-lamp than a large lump of metalwork that was designed around limitations, not ideals.

Or maybe not. Maybe faders are perfect. I'm sure that every now and again we stumble upon the perfect on our first attempt? At least, then, we should make sure and try some alternatives. A GUI is merely a software overlay, so there's no reason why a few enterprising individuals shouldn't have a go, is there?

Paul Mac, Editor

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subs@audiomedia.com
UK £43
European (airmail) £60
International (airmail) £72
Payable in Sterling through UK bank

NewBay Media
www.nbmedia.com

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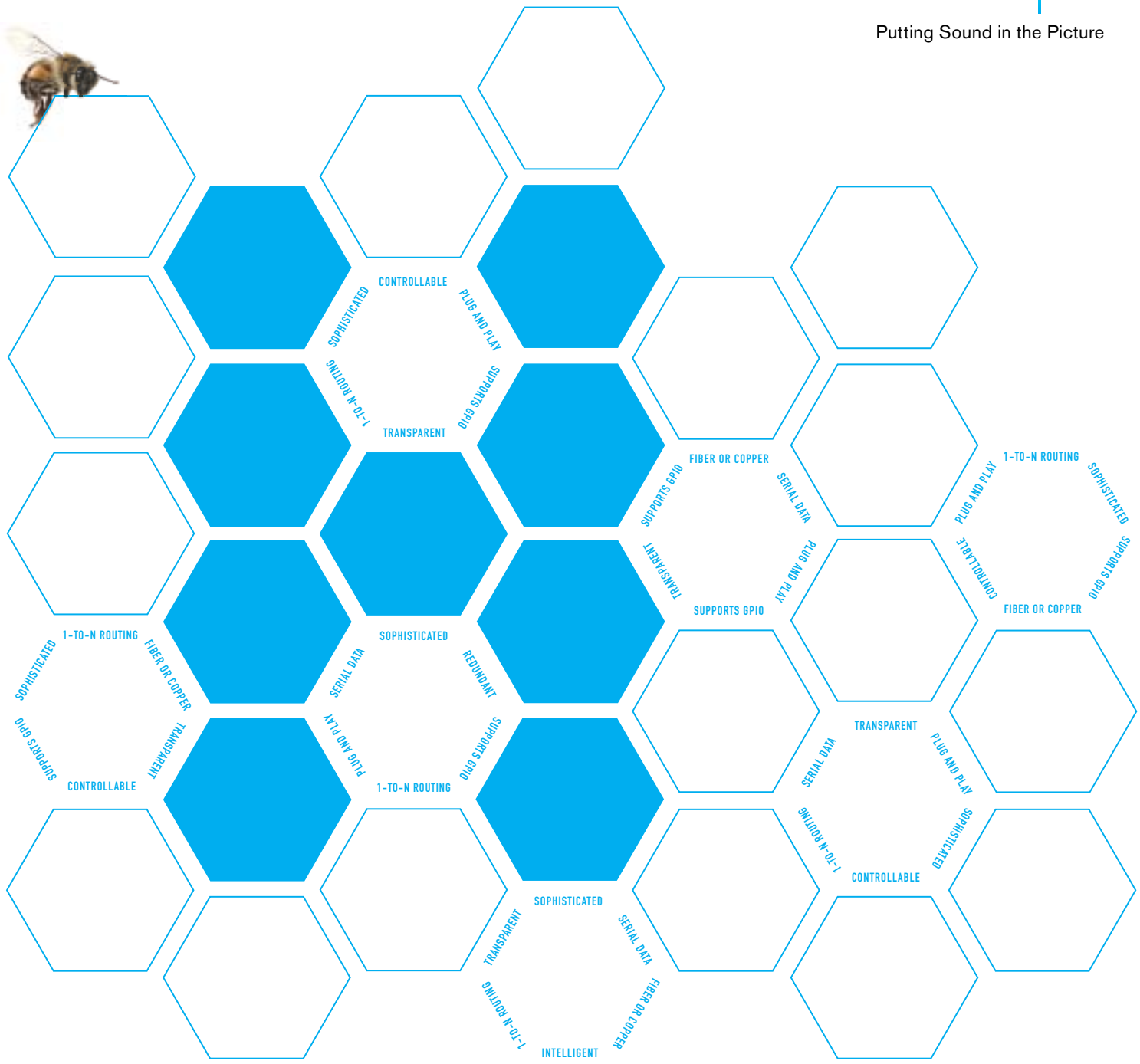

Hydra2 forms the routing backbone for both the Apollo and Artemis consoles.

These desks are just one type of client capable interfacing with Hydra2, which provides an enormous 8192^2 synchronous router at its core. A range of I/O boxes can be connected via high density 512 bi-directional copper or fiber connections, while mini-GBIC connectors keeps connections simple and installation easy.

Highly scalable, Hydra2's router is a TDM-type router, capable of 'one-to-many' routing and truly point-to-point. This allows for enormous networks with highly flexible topologies involving multiple routers, inputs/outputs, control rooms and studios. And with adaptive, intelligent software which automatically recognizes changes to the network and updates all its clients, it's also a very social network.

Hydra2. Minimizing installation overheads and maximizing audio routing flexibility.

Bluefin2™

calrec.com

HYDRA2

It might seem like a bit of a busman's holiday, but if you fancy going to see a film, *Sound City* has recently been released. Sound City Studios was a recording studio opened in 1969 in Van Nuys, Los Angeles.
A veritable smorgasbord of recordings were made there, with artists including Neil Young, Dr John, Joe Cocker, Fleetwood Mac and Tom Petty, Johnny Cash, Metallica and, er… Charles Manson.
In 1991, Nirvana recorded their seminal album *Nevermind* there. In 2011, when the studio finally closed, Nirvana's Dave Grohl purchased several items, including its legendary Neve 8028 analogue mixing console. Grohl has now directed this documentary about the history of the studio, bringing famous musicians who recorded at Sound City to his personal studio, Studio 606, to make a new album using the Neve console.

www.soundcitymovie.com

Subscriber Prize Draw Winner

Congratulations to to Suny Chapon from Le Havre, France, who is this month's lucky winner of the AM subscriber's draw. Every month throughout 2013, one randomly selected subscriber will win an sE 4400a microphone. To be entered into the draw, you must have a current digital or print subscription. To get one, go online to the address below. Good luck!
www.audiomedia.com/subscribe.html

Don't forget to check out our website. You can keep up to date with industry news, whatever your particular interest – you'll find recording, post production, broadcast, live sound news, and events. There are features about all aspects of audio, and blogs from a variety of contributors.
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*Shipping Q1 2013 **Shipping Q2 2013

New From Sonifex

Sonifex had a range of new products on display at the BVE show at London's Excel. The RB-IPE is a 1U rackmount unit designed to provide remote control of GPIO and analogue control voltages over an Ethernet network. Configured using a built-in web server, two units can control each other across an Ethernet network, or a single unit can be controlled via Ethernet commands and the web server interface. It has 16 general purpose inputs on eight RJ45 connectors, and 16 general purpose outputs on eight RJ45 connectors using eight isolated relay charge-over contacts and eight opto-isolated contacts. These rear panel RJ45 connectors have an LED for each GPIO, which shows its state.

A new addition to the Sonifex range of commentary products, the CM-CU1 provides a fully featured commentator position with a line-level input and has an individual commentator output, with an additional output providing a mix of commentator and line input audio. The line input can be configured to remain present at the mix output even if the commentator is off air, making it useful for routing crowd effects or pre-recorded material to the programme feed. Four talkback channels, with a built-in limiter, are available to the commentator, and they can be linked for simultaneous operation.

The CM-TB8 is a self contained communications unit providing eight channels of four-wire communication, housed in a 1U rack mount enclosure. It has individual connections for both a headset on a five-pin XLR and microphone/headphones on XLR/stereo TRS jack, with the current selection indicated on the front panel. The gain setting for each input type can be individually set between +6dB and +68dB.

"The line input can be configured to remain present at the mix output even if the commentator is off air."

As the UK distributor for DaySequerra, Sonifex also showed the DaySequerra iLC2ST two channel stereo TV loudness control. It delivers EBU R128, ATSC A/85 CALM and ARIB-B32 loudness compliance simultaneously for two independent stereo TV broadcasts worldwide, in a 1RU package.

www.sonifex.co.uk

Marquis Broadcast has announced the launch of an 'enterprise' version of X2Pro. The enterprise solution will be available direct from Marquis for large numbers of users. "The latest version of X2Pro Professional with its ability to work with referenced media, greatly increases the efficiency of moving from Final Cut Pro X to Pro Tools, and we are now excited to offer such advantages to multiple users on an enterprise-wide scale," said Chris Steele, Product Manager at Marquis Broadcast.

www.marquisbroadcast.com

Plugin Alliance has announced the availability of noveltech Vocal Enhancer, an all-new native version of Alliance partner company noveltech Audio's vocal processing plug-in. Vocal Enhancer uses IAD (Intelligent Adaptive Filtering) technology, which dynamically boosts the 'desired' characteristics in audio recordings, rather than statically boosting set frequencies, like an EQ, or adding harmonics. The algorithm involved constantly adapts itself to the source material

www.plugin-alliance.com

Antelope Leaps For Orion

Antelope Audio is shipping the Orion 32, a 32-channel AD/DA converter and audio master clock in a 1U rack. The device supports both MADI and USB interfaces, clocked by Antelope's 64-bit Acoustically Focused Clocking (AFC) technology. Orion 32 allows 192kHz I/O streaming of 32-channel digital audio through its custom-built USB chip, which provides connectivity to any USB-enabled DAW or computer. The converter also provides 32 channels of 96kHz audio through its fibre optic MADI I/O connections.

The unit also supports ADAT protocol by offering 16 I/O channels. The multi-channel converter inputs and outputs pass the analogue signal through eight D-SUB 25 I/O connectors.

Orion 32 is also an audio master clock, with four world clock outs and a 10MHz input.

www.antelopeaudio.com

Control the ID-Station

WK-Audio has launched ID-Station, a new controller designed and developed in tandem with Steinberg's Nuendo and Cubase software. It is based on the fader module used in WK-Audio's ID-Console, featuring 12 motorised, touch-sensitive faders, each equipped with a

two-line LCD display for the track name and module status. It offers another twelve encoders, each with a two-line LCD display and a control range indicator that may also be used as a channel level knob. The FLIP function swaps assignments with the faders below, which gives users direct access to 24 level controls. The Edit section allows 18 functions to be controlled directly by the weighted 60mm dial. It also comes with ID's Control Room monitor section, featuring an in/out matrix as well as surround reduction buttons and 12 level rotaries.

www.wk-audio.de

Polaris Shines With Aspen Media

The Stagetec Polaris flexible modular mixer made its UK debut at BVE. The basic module has a touch screen and 16 dual

>

Time For An Upgrade

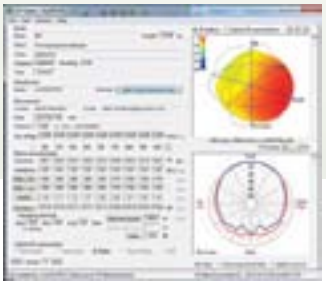
Yamaha has released a major upgrade to the firmware for its CL series digital mixing consoles. CL Series Firmware V1.5 has been developed, Yamaha says, in response to comments and 'wish lists' from CL series users. New features include Scene Preview – pressing the Preview key allows the user to view (and if necessary, edit and re-store) any other scene. While doing this the scene number blinks red as a reminder that the console is in Preview mode. A new Cue Level parameter allows the user to control cue level independently from monitor level. The cue level can be assigned to custom faders and user defined knobs, meaning monitor engineers have better access to monitoring both IEM and wedge levels – much like the PM5D.

A -6dB high pass filter on input parametric EQs allows a gentler slope of HPF to be selected, while a Device Mount page has been added to the Dante Set-up function, making it easy and flexible to configure the CL system, even when offline, with up to 24 devices able to be mounted in any preferred order. A Remote Head Amp Assign page has been added, allowing the user to assign any eight head devices from 24 mounted devices, while a new Console ID OFF button has been added for use with more than four consoles. The Dante Set-up facility also now sees the I/O Rack and External Head Amp pages in the Virtual Rack section moved to the new I/O device section.

"CL Series Firmware V1.5 has been developed… in response to 'wish lists' from CL series users."

The user can detect and patch the new Ri8-D/Ro8-D input/output units direct from the CL series console, control the Ri8-D's analogue gain, and have the benefits of full gain compensation from both new units. The CL series console can also now detect and patch Yamaha Nuage I/O, MTX5-D matrix processor and XMV-D digital power amplifiers, Nexo NXAMP, and the Dante MY16-AUD and Dante Accelerator interfaces.

www.yamahacommercialaudio.com



L-Acoustics has announced that new modules are now available for third party software. The L-Acoustics line source arrays can now be simulated via specific GLL or DLL files respectively for the electro-acoustic software EASE and CATT-Acoustics. L-Acoustics coaxial speakers can also be simulated using the dedicated GLL file in EASE and the Common Loudspeaker Format (CLF) file for CATT-Acoustics, ODEON, and LARA.

www.l-acoustics.com

Source Distribution hosted the UK debut of two new RØDE products at BVE. The RØDE iXY is a 24-bit/96kHz iOS compatible microphone, which allows the Apple iPhone, iPad and iPod touch to become broadcast-quality portable stereo recording devices. The brand new RØDE Reporter handheld dynamic microphone was also on display.

www.sourcedistribution.co.uk

> concentric rotaries; while the fader module has 12 motorised faders and automation control. A fader expansion module is available with a further 16 faders. The touch 'keys' are based on clear graphical representations, with anything not needed for the parameter being worked on hidden by the system. The console features a Nexus audio routing system.

Also shown in the UK for the first time was Jünger Audio's M*AP, an eight channel monitoring controller and loudness management system built for quality and compliance checking of stereo or 5.1 to EBU R128 specifications. M*AP can also generate a two-channel downmix from a 5.1 programme for stereo compatibility checking.

www.aspen-media.com

TSL Surrounds SoundField

TSL Professional Products has acquired SoundField Ltd, and had the new SoundField DSF-B Digital Broadcast Surround Microphone package on its stand at BVE. The DSF-B digital broadcast package provides simultaneous

digital surround and stereo soundscapes of large-scale outside broadcast events. It removes the need for multiple arrays, generating multi-channel audio from a single point source. It offers downmix compatibility with mono or stereo. The microphone parameters are controlled remotely.

New TSL products include the SAM1-3GM audio monitor, which features a 20-channel bargraph display of selected input channels; scroll to hear channel selection; channel format selector for mono, stereo, or 5.1 pairs; and instantaneous downmixing of surround sources for stereo compatibility. Also available is the new and enhanced Monitor Plus range.

www.tsl.co.uk

The Cat That Got The Meter

Blue Cat Audio has released Blue Cat's DP Meter Pro 4.0, a brand new version of its multi-purpose audio levels meter and envelope generation plug-in. The DP Meter Pro (DPMP) is an audio analysis tool that combines flexible and customisable audio meters with advanced envelope generation and side chaining control capabilities. The new version comes with a completely redesigned user interface and many new features and enhancements, including fully customisable meters; crest factor display; levels histograms for precise dynamic range analysis; surround support; a new presets manager; Windows AAX support; multiple display sizes; and new MIDI and automation mapping capabilities.

The plug-in is available alone or as part of Blue Cat's Analysis Pack,

the company's flagship audio analysis solution.

www.bluecataudio.com

TC Electronic Expands DB Platform

TC Electronic has launched the DB6, a television and mobile television transmission processor that is able to handle everything regarding loudness in one simple process – loudness metering at the input stage, up or down conversion, loudness processing, on-line lip-sync delay, loudness metering at the output stage, and logging of all relevant loudness statistics. It is a new addition to the DB family of processors that includes DB2, DB4, and DB8. The DB6 is housed in a single rack space unit that allows processing of up to three simultaneous SD/HD/3G streams. It features two 5.1 capable processing engines per SDI stream, each capable of delivering to any platform and any codec. DB6 is compliant with all major broadcast standards.

www.tcelectronic.com

Power Drive For Crown

Crown Audio has announced the introduction of its DriveCore Install (DCi) Series power amplifiers. Designed as a successor to the CTs Series, there are 12 models in the DCi Series available, ranging from 300 watts to 600 watts. The first number in the model is the amount of channels, and the second number indicates the watts-per-channel power rating. All amplifiers are 2U rack spaces high.

"In introducing the DCi Series we had to exceed the benchmarks set by our acclaimed CTs Series, which has established itself as the de facto amplifier standard for installed sound applications," said Daniel Saenz, Business Segment Manager, Install Sound, Crown. "It was no easy task, but our new DCi Series offers an entirely new level of unsurpassed performance that will be appreciated by audio professionals worldwide."

"Designed as a successor to the CTs series…"

The DCi Series is built around Harman's proprietary DriveCore amplifier IC chip. The DriveCore chip combines the amplifier driver stage into the power output stage along with additional audio-signal functions. DriveCore and the DCi Series amplifier technologies reduce size (the DriveCore chip is around the size of a postage stamp) and power consumption requirements, and feature more energy-efficient operation. DriveCore replaces over 500 parts from a typical amplifier design with one single IC.

The amplifiers can be operated into eight, four or two Ω loads, and offer direct drive 'constant voltage' capabilities for 70Vrms and 100Vrms without the need for a step up transformer.

Crown claims that the DCi Series is its 'greenest' amplifier range ever, with a Power Factor Corrected (PFC) power supply, and a selectable powersave auto-standby mode where the amplifier will power down after 30 minutes of no input signal and consume less than 1 watt. In addition to the amplifiers' balanced three-pin input connectors and two-pin terminal strip output connectors, a rear-panel AUX port enables the amplifiers to be integrated into control systems for remote on/off and amplifier fault monitoring.

www.crownaudio.com

HHB showed the new Olympus LS-14 portable recorder on its BVE stand. Featuring Tresmic three microphone technology, the LS-14 captures audio up to 24-bit/96kHz in BWAV, WMA, or MP3 formats. Two 130dB SPL stereo mics and a centre omni-directional mic are provided. HHB also showed Yellowtec's new Pad-Dock, for iPad mounting, at the show. The new release adds to the m!ka Mounting System, which offers a collection of monitor, loudspeaker and microphone arms.

www.hhb.co.uk

Grund Audio Design has introduced the STP-8/STP-5S loudspeaker combination. The STP-8 is Designed to be pole mounted over the STP-5S subwoofer. The STP-8 has an eight-inch LF transducer that is matched with a one-inch HF compression driver to form a compact, two way design.

www.grundaudio.com

New Meter Features

DK-Technologies has released new software for its DK Meter range. It includes a horizontal bargraph mode, which, with the already incorporated MSD View, FFT analyser, and graphical loudness, now allows users to see and secure audio from any angle. "With this new software update, users can now access Dual Loudness bargraph functionality, as well as Dual Scale Views, allowing independent ppm and loudness scales to be viewed alongside each other," said Uffe Khems Hansen, Product Marketing Director for DK-Technologies.

A new quick set-up menu is also included. The software update is available for download free of charge on the DK-Technologies website.

www.dk-technologies.com

Audio Correction Stands Alone

NUGEN Audio has released a new stand-alone version of its LM-Correct loudness analysis and correction tool, which was originally only available as an AudioSuite plug-in. It is now available as a file-based program. LM-Correct provides EBU R128/ATSC A/85-compliant loudness correction, offering a two-click solution for loudness normalisation and conformance.

"We created a version of LM-Correct with greatly enhanced compatibility to accommodate our customers who use editing software other than Avid's," said Jon Schorah, Creative Director of NUGEN Audio. "Now any editor can use LM-Correct to correct loudness no matter which DAW they use."

www.nugenaudio.com

Bob Breaks Out

Lectrosonics has announced the new DNT BOB 88 Dante Breakout box for use with the company's ASPEN Dante network processor or other Dante hardware. The DNT BOB 88 is a general purpose interface designed to transmit and receive line level analogue signals via a Dante network. Analogue inputs are converted to digital and appear on the network as transmit channels. Audio for the analogue inputs is taken from subscriptions to transmit channels on the network from other sources. When connected to a network, each DNT BOB 88 breakout box will appear as a separate device in the Dante Controller software interface.

www.lectrononics.com

Hybrid Debutante

Telos Systems has debuted the Hx6, a new six-line broadcast phone system equipped with advanced Telos hybrids and a full suite of audio processing capabilities, including Telos' Digital Dynamic EQ. Hx6 is designed to extract excellent caller audio from all connections. It works with POTS or ISDN phone lines and comes equipped with dual hybrids. It features DSP algorithms optimised for perform well with a wide variety of incoming call types.

www.telosalliance.com

iiii-Compatible

Apogee Electronics has announced the availability of iPad, iPhone, and iPod Touch compatibility for Quartet, its four input, eight output USB audio interface. Maestro, Apogee's control software for Quartet, is now a free download from the app store and the 30-pin cable for connecting Quartet to any compatible iOS device is available on the Apogee website. A simple firmware update is also required.

www.apogeedigital.com

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www.riedel.net

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MPG Winners

The 2013 Music Producers Guild Awards took place at Cafe de Paris in London on February 8, with a total of 18 awards being presented. The top award for Producer of the Year – which also gives the winner the BRIT Award for Best Producer – went to Paul Epworth for his work on Florence + The Machine's *Ceremonials*.

Steve Levine, Chairman of the Music Producers Guild, said: "When it comes to talent and creativity, British music production has a long legacy that is internationally recognised and respected. Younger recording professionals are the life blood of our industry, and we are delighted that so many of them have been Award recipients this year. Recording professionals play a vitally important part in the success of the UK and international music industry, and we are happy to honour their achievements, not just to give them the accolades they deserve, but also to motivate the next generation of 100,000 music students in the UK who will be the producers and engineers of the future."

The awards ceremony, hosted by Lauren Laverne, also honoured Sir George Martin CBE, who was presented with the Outstanding Contribution to UK Music Award.

Other winners included Al O'Connell, who received the Recording Engineer of the Year award; Alan Moulder for Mix Engineer of the Year; and Matt Colton for Mastering Engineer of the Year. Bon Iver at AIR Studios was declared Live Production of the Year; while Florence + The Machine's *Ceremonials* album received the UK Album of the Year award. The Maccabees' single *Pelican* took away the prize for UK Single Song Release of the Year. UNKLE was announced to be Remixer of the Year, and Danger Mouse International Producer of the Year. Charlie Andrew was named Breakthrough Producer of the Year, and Charlie Hugall got the nod for Breakthrough Producer of the Year. Snap! Studios were named Studio of the Year.

www.mpgawards.com

Singer/songwriter Chet Delcampo has installed a Cadac LIVE1 compact analogue console in his private recording studio. "The quality factor was my main interest," said Delcampo. "It's fair to say that being designed as a live desk it has relatively minimal studio monitoring options, but, that said, by using the board's AFLs on the monitor and master sections one can easily switch between tracking mode and mixing mode; i.e., back to DAW or tape capture and returning into the LIVE1 to monitor. I'm finding for my studio it works well..."
www.cadac-sound.com

Toby Alington and his team at Richmond Studios Productions have launched a new online mastering service. Alington has recently recorded the BRIT Awards for the 19th year and has worked on many other large music shows. He has recently engineered artists such as Adele, Emili Sandé, Rihanna, Coldplay, Take That, Lady Gaga, and Kylie Minogue.
www.richmondstudios.com

Producer Mike Crossey has recently relocated into Livingston Studios in North London, and has purchased the Isochrone Trinity master clock from Antelope Audio. "The Trinity is hands down the ultimate studio clock," said Crossey. "There really is nothing out there that competes at this level. It's extremely valuable peace of mind to know that all your digital equipment is clocked from a master clock of the very highest quality, and you can get on with being creative."
www.antelopeaudio.com

The new forthcoming album from Queens of the Stone Age has been recorded and mixed on Unity Audio Rock and Boulder active monitors, at Pink Duck Studios. "The Unity Audio Rock Studio Monitors have been a fantastic addition. The result is true detail with a wide depth of field and I don't get any surprises when I take mixes out of the studio," said singer, guitarist and songwriter Joshua Homme. "As for the Boulders...they're the exact speaker I needed. Accurate details abound."
www.unityaudioproducts.co.uk

Royer and Roland Honoured

Royer Labs has received the Technical Grammy Award for its ribbon microphones. Technical Grammy Award recipients are determined by vote of the Academy's Producers and Engineers Wing Advisory Council and Chapter Committees, as well as the Recording Academy's National Board of Trustees. The award is presented to individuals and companies who have made contributions of outstanding technical significance to the recording field. The Recording Academy said: "Royer Labs' line of ribbon microphones has made a profound difference in the way engineers record music."

Also honoured this year was Roland founder Ikutaro Kakehashi and Dave Smith, for their contributions to the development of MIDI. "I am very happy that MIDI has been regarded as a global standard by many musicians all over the world, even 30 years after its development," said Kakehashi.
www.grammy.com
www.roland.com
www.royerlabs.com

Golden At Grammys

The 55th annual Grammy Awards took place on February 10 in Los Angeles. Record of the Year went to Gotye for *Somebody That I Used To Know*. The Award for Producer of the Year, Non-Classical, was given to Dan Auerbach. Best Engineered Album, Non-Classical, was *The Goat Rodeo Sessions*, which was engineered by Richard King; and Best Remixed Recording, Non-Classical, was given to the Skrillex and Nero remix, *Promises*. Best Surround Sound Album went to *Modern Cool*, with Jim Anderson as Surround Mix Engineer, Darcy Proper as the Surround Mastering Engineer, and Michael Friedman as Surround Producer. Best Engineered Album, Classical was *Life & Breath – Choral Works* by René Clausen, engineered by Tom Caulfield and John Newton, with Mark Donahue as Mastering Engineer. The Producer of the Year, Classical award, was presented to Blanton Alspaugh.
www.grammy.com

Orgone Gets SSL

London's Orgone Studios has installed a Solid State Logic AWS 948 hybrid console/controller. "Each band has its own sonic identity, and the AWS 948 allows us to work with different genres of music," said Co-owner Jaime Gomez Arellano. "While we looked at other analogue consoles, including a vintage SSL 4000, the AWS 948 was really appealing in terms of how we make music. It offers workflow, stereo channels, automation, Total Recall, powerful DAW control, great EQs and dynamics, all in a compact frame that allows me to be sitting in the sweet spot at all times. I think the AWS is the most well thought out desk for mid-size studios available on the market."
www.solidstatelogic.com

Celebrating Cinema Audio

The 49th Annual Cinema Audio Society Awards took place on February 18 at the Crystal Ballroom in Los Angeles' Millennium Biltmore Hotel. The *Les Miserables* team – Simon Hayes, Andy Nelson, Mark Paterson, Jonathan Allen, Robert Edwards, and Pete Smith – took the award for Outstanding Achievement in Sound Mixing for a Motion Picture – Live Action, while the newly added category of Outstanding Achievement in Sound Mixing for a Motion Picture – Animated was won by the sound mixing team who worked on Pixar's *Brave*, which included Bobby Johnson, Tom Johnson, Gary Rydstrom, Andrew Dudman, and Frank Rinella.

Production Sound Mixer Chris Newman was presented with the CAS Career Achievement Award. Newman is a three-time Academy Award winner for *The English Patient, Amadeus* and *The Exorcist*, and had previously won a CAS Award for his work on *The English Patient*. "Tonight I consider myself the luckiest man who has ever lived," he said, as he collected his award.

Director Jonathan Demme was given the CAS Filmmaker Award, and said: "For me to receive an award from the sound community, after a career of sound-obsessive filmmaking, is just fantastic, a huge honour."

Outstanding Achievement in Sound Mixing for a Television Movie or Mini-Series went to the sound mixing team on *Hatfields and McCoys* – Dragos Stanomir, Christian Cooke, Brad Zoern, Jeffrey A. Vaughn, Eric Apps, and Peter Persaud.

Larry Long, Nello Torri, Alan M. Decker, Paul Drenning, and Shawn Kennelly took the award for Outstanding Achievement in Sound Mixing for Television Series – One Hour for their work on *Homeland: Beirut is Back*. Outstanding Achievement in Sound Mixing for Television Series – Half Hour was awarded to *Modern Family: Disneyland* and the sound mixing team of Stephen A. Tibbo, Dean Okrand, and Brian R. Harman. Brian Riordan and Jamie Ledner's work on the 2012 Rock & Roll Hall of Fame Induction Ceremony earned them the award for Outstanding Achievement in Sound Mixing for Television Non Fiction, Variety, or Music – Series or Specials.

The winner of the CAS Technical Achievement Awards for Production was Sound Devices, for the 664 Field Production Mixer with Recorder; and for Post Production, Dolby Atmos.

www.cinemaaudiosociety.org

Less Miserable Now

The 2013 British Academy Film Awards took place on February 10 at the Royal Opera House, London. Simon Hayes, Andy Nelson, Mark Paterson, Jonathan Allen, Lee Walpole, and John Warhurst received the Sound 2013 BAFTA award for their work on *Les Misérables*.

Hayes, in an interview with *Audio Media*, spoke about the audio objective: "The finished product,...definitely delivers what we set out to achieve... to bring the audience as close as possible to the pure emotions of the cast in the moment as possible. The live singing is a testament to what can be achieved when everyone on the set works together."

Unusually, the Best Sound Editing award was a tie – only the sixth tie vote in the history of the Academy Awards that resulted in two awards being presented. Per Hallberg and Karen Baker Landers won for *Skyfall*; as did Paul N.J Ottosson for *Zero Dark Thirty*.

www.bafta.org

Sonoblok Closure Confirmed

Bernat Padros, Managing Director of audio post production facility Sonoblok, has confirmed that the studio is to close after 44 years as one of the top European post production and dubbing houses. The facility will complete current mixing projects.

Sonoblok first opened in 1969 with a sound studio and film lab. In 1977 the studio moved premises as it took on bigger film dubbing jobs. In 2002 it moved to a new facility in Barcelona, and in March last year created one of the first IMM Sound (objective/3D audio format) mix rooms. Soon after, in July 2012, IMM Sound was acquired by Dolby Laboratories so that the technical expertise and property could be used to further its new Atmos object-based format, ending the IMM Sound platform.

www.sonoblok.com

CEDAR Cleans Up

Singapore's national broadcaster, MediaCorp TV, has chosen CEDAR Cambridge V8 to clean up and restore its TV and film soundtracks in its post production facility. Gordon Reid, Managing Director of CEDAR Audio explained: "The workflow within MediaCorp means that the audio department is frequently presented with edited programme material, often with short timescales for cleaning the audio or repairing any damage to the soundtrack." The system is connected to MediaCorp's internal network, and is capable of accessing material throughout the facility, processing it, and then placing the restored audio in the correct location for laying back into the final file.

www.cedaraudio.com

Scrub has supplied both 16-fader D-Control and eight-fader D-Command consoles to London-based post facility Bubble TV. They are now also running the latest Pro Tools HDX system with v10 software and additional digital HD I/O. A TC Electronic TM9 TouchMonitor loudness meter was also supplied as part of the upgrade. "We're delighted with our new consoles," said Bubble TV CEO Chris Phinikas. "They will help our sound engineers create even better content and offer our clients a wider variety of options."

www.hhb.co.uk
www.bubbletv.co.uk

Birmingham-based The Audio Suite was asked by the DreamWorks Studios post-production team to provide ADR for the recently released Steven Spielberg film *Lincoln*. "We chose The Audio Suite for ADR for this project because of their first-class reputation and proximity to talent," said Mark Graziano, Vice President of Post Production for DreamWorks Studios. "We were pleased with their contribution to the film and impressed with the ease in which The Audio Suite studios and our sound team at Skywalker Sound were able to work together."

www.theaudiosuite.com

HHB Communications has provided London-based Rapid Pictures' new 5.1-equipped audio post production room with a 24-fader Avid D-Command and a Genelec DSP loudspeaker system. Due to the unusual roof space location, Rapid installed a bespoke configuration of three Genelec 1238F loudspeakers, a pair of 8240 nearfield monitors, and a 7271A sub.

www.hhb.co.uk
www.rapidpicture.co.uk

Heard City, a boutique audio post-production company located in New York's Flatiron district, has added Mixer and Sound Designer Dan Flosdorf to its roster. Prior to joining Heard City, Flosdorf spent time at @radical.media, Sound Lounge, and Outpost Digital, working on a wide range of commercials and features.

www.heardcity.com

News Delivered By SSL

Independent Television News (ITN), a major UK-based provider of news programming for a number of broadcasters, is using a Solid State Logic C10 HD compact broadcast console to deliver content to UK broadcaster Channel 5. Situated in a custom-designed studio located at the Channel 5 facility on Lower Thames Street, London, the C10 is used to produce full half hour news shows and regular two minute bulletins. The new facility was put together at the request of Channel 5 management to have the news production studio built at the station's facility, rather than the ITN facility on Grays Inn Road.

"We were looking for a compact-sized solution that was expandable," said Steve Luck, Senior Team Leader of Broadcast Support for ITN. "Looking at the architecture of the C10 and the way the I/O was configured, the C10 was the perfect choice for this application."

TI Broadcast Solutions Group has also specified the C10, installing four of the consoles in two major new television studio facilities in Texas. The first station to reach completion was a 10,000 square-foot facility with a studio and a control room, which was built for the second-largest Spanish-language content producer in the world. The second facility, a 150,000 square-foot space with five studios and three control rooms, will be completed during 2013 and will serve the Dallas/Fort Worth Metroplex area for a major national broadcaster.

"This is the first time we directly specified an SSL console, and the results from the first control room we completed are very satisfying. The C10 has performed flawlessly, and that is a must for high energy broadcast news operations," said Michael Wright, President of TI Broadcast Solutions Group. "The dialogue Automix option is a standout feature of the SSL product. These stations deal with fast-paced, panel-based programming, and the Dialogue Automix really streamlines the workflow."

www.solidstatelogic.com

Ukrainian system integrator and OB truck company Engineer Service has taken delivery of an Artemis Light console, which will be installed in its newest mobile OB truck to mix live audio in stereo and Dolby E 5.1 broadcast formats, and for multi-channel recording in live production. "We can do things we couldn't do before, such as provide more than two channels of 5.1 audio broadcast soundtracks," said Dmitriy Prikordonny, General Director of Engineer Service.
www.calrec.com

Italian-language radio station RSI Rete Tre, based in Lugano, Switzerland, has overhauled its main studio as it approaches its 25th anniversary; specifying a Studer OnAir 3000 digital broadcast console. The station's criteria were ease of use, since their DJs need to manage multiple tasks when on air, and integration with the existing Studer DigiMedia playout system. The station already has several Studer mixers, including OnAir 5000, 1000, 1500, 2500, and Vista 7 and 8.
www.studer.ch

Qatar Radio has taken all five of its main channels live on the NETIA Radio-Assist 8.1 digital audio software suite. The NETIA software, which Qatar Radio also uses as a disaster recovery solution, replaces an existing radio automation product, and allows the station to bring all radio production and broadcast functions onto a single platform. It is installed on 34 workstations across two sites.
www.netia.com

German rental company Audio Broadcast Services is providing Lawo equipment for reinforcement and monitoring duties for the popular 'Wetten, dass...?' shows which air on public TV channel ZDF. Equipment includes a 64-fader mc256 (including 16-fader extenders), featuring 240 DSP channels, and four DALLIS stageboxes. ZDF's on-site OB van is equipped with an mc266, and the two are connected to perform further operations.
www.audio-broadcast-services.de

JoeCo Finnish Broadcasting

A JoeCo BlackBox BBR64-MADI Recorder has been installed in the Tampere studios of Yleisradio (YLE), the Finnish Broadcasting Company. Located in the studio complex's main control room, the 64-channel system is used alongside other software-based systems for capturing entertainment programmes and music shows.

"We chose the BBR64-MADI because it integrates beautifully with other MADI-based broadcast audio systems such as the SSL C10 and C100 digital live mixing consoles, and the Riedel MediorNet media networking system that we currently use," said YLE Technical Producer Antti Immonen. "As more studios are updated I'm confident that we will look to add further systems."

Joe Bull, JoeCo's Managing Director, said: "Increasingly in broadcast facilities you can't afford to make mistakes, and the BBR64-MADI is a great defender against this happening."
www.joeco.co.uk

Keep CALM And Carry On

WBPH in Philadelphia and WMBC in New Jersey, two stations in neighbouring markets that share engineering ideas and resources, have purchased Jünger Audio T*AP units to help them comply with the USA's new CALM legislation on broadcast audio loudness. WMBC has invested in three T*AP units, all of which have been installed in its Master Control (Cut Studio) in West Caldwell, NJ. WBPH has installed one T*AP in its Master Control in Allentown, PA.

"With the anticipation of adding additional channels in the near future, WBPH had a present need but also a requirement to easily expand as well," said Daniel P. Huber, Chief Engineer at WBPH-TV. "Jünger Audio easily met this need."
www.junger-audio.com

Touchmix In Shanghai

TSL Professional Products has delivered five Touchmix Combo Systems to Shanghai Media Group (SMG). SMG operates 14 television channels and 11 radio stations serving the Shanghai area, with an audience of 1.6 billion. The dual Touchmix Combo systems will be installed in five television production studios and will be used as a safety net for its 24-hour news operations. Each of its production studios is outfitted with a high-end digital audio console. The rack-mount Touchmix's are located in the production room, where the technical manager can make configuration changes. In the event that the primary audio console fails for some reason, the parallel configured Touchmix combo systems can take over the audio tasks.
www.tsl.co.uk

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WWW.ALLEN-HEATH.COM/GLD

Meyer Gets Rocky

A stage adaptation of Sylvester Stallone's film, *Rocky – Das Musical*, has just opened in Germany. With an investment of nearly $20 million by Germany's Stage Entertainment, *Rocky* is staged in Hamburg's 1,400-seat Operettenhaus, a Stage Entertainment-owned theatre with excellent technical amenities but notoriously dry acoustics. This was addressed with a permanently installed Constellation acoustic system from Meyer Sound.

"As the design for the show came together, it quickly became evident that Constellation would be playing not only a technical role in enhancing room sound, but also an artistic role by providing enhanced 'environments' to match specific locales in the story," said Sound Designer Peter Hylenski. "As an acoustic enhancement system, even the slightest addition seems to lift the sound off the page by giving more depth and excitement to the room. But we also use it as an environmental simulator."

The permanent Constellation system at the Operettenhaus is built around the Meyer Sound D-Mitri digital audio platform with two core processors, a core matrix unit, and nine digital and analogue I/O units. Four DVRA modules generate early reflections and complex late reverberations in four zones. There are 42 cardioid and omni-microphones picking up ambient room sound, with the variable acoustics created through 235 Meyer Sound self-powered loudspeakers comprising seven different full-range and subwoofer models. The options for room variation include five reverberation times, each with three density settings, plus nine bass ratio and nine strength presets. Hylenski created a configuration specifically for the production, which has its own D-Mitri-based show control system interfacing directly with Constellation. The predominantly Meyer Sound loudspeaker system is anchored by twin arrays of 13 per side M'elodie line array loudspeakers with two ground-stacked 700-HP subwoofers under each array. The rest of the system incorporates seven other Meyer Sound full-range loudspeakers and three additional subwoofer cabinets.

www.meyersound.com

Masque Sound has supplied equipment for the Second National Tour of *The Book of Mormon*, the Tony Award-winning musical, providing Sennheiser MKE-1 microphones for the lead actors and MKE-2s for various other cast members. Other gear includes DPA 4061 microphones, L'Acoustics speakers, and a Digico UB MADI interface sound console – used to digitally route a QLab directly to a Digico SD7.

www.masquesound.com

Mezzo soprano Katherine Jenkins recently toured the UK and Ireland, supported by the National Symphony Orchestra and London Philharmonic Choir, and joined by guests such as the Band of the Welsh Guards. RG Jones supplied all of the audio equipment for the tour and specified DPA microphones for the orchestra. A total of 14 DPA 4061 miniature microphones were used to capture the sound of the strings, while the low strings and the brass section were miked using 10 DPA d:vote 4099 instrument microphones.

www.dpamicrophones.com

Denmark's busiest concert hall complex, the Musikhuset Aarhus, has invested in a Midas Pro6, along with a DL351 modular stage box and two DL431 mic splitters. The venue covers more than 35,000 square metres, making it the largest concert house in northern Europe. Long-term tenants of the Aarhus Musikhuset that will benefit from the new system include the Danish National Opera, the Danish Royal Academy of Music, and the Aarhus Symphony Orchestra.

www.midasconsoles.com

Denver Performing Arts Complex's Boettcher Concert Hall, home to the Colorado Symphony Orchestra, has recently undertaken a full audio system retrofit that included an L-Acoustics amplifier and loudspeaker package. The primary PA is comprised of four horizontal arrays of ARCS II. Three additional ARCS II – each individually hung in a horizontal orientation – serve as upper front-fills and address the upper ring and rear mezzanine seats.

www.l-acoustics.com

Sound Of The Grammys

ATK Audiotek supplied the sound reinforcement system for the 55th Grammy Awards in Los Angeles; with JBL VTX line arrays comprising the live sound reinforcement system at the Staples Center. The system featured left-right columns of 12 VTX V25 full size line array elements per side for the main PAY, with additional left-right columns of 12 V25 per side for outfill, along with a central cluster of 18 VTX S28 arrayable subwoofers in cardioid mode for a total of 66 VTX loudspeakers. Six VRX932 Constant Curvature loudspeakers served as front fill, with left-right rear delay arrays of eight VerTec VT4889 full size line array elements each. Powering the loudspeakers were 16 Crown Audio VRack 2000s and four VRack 4x3500s, and the entire system was configured using JBL HiQnet Performance Manager software.

www.atkaudiotek.com
www.jblpro.com

Yamaha Rises With The Dark Knight

Virgin Media launched its movies-on-demand service with a showing of *The Dark Knight Rises*, on the helipad of an 18-storey London building. Urban Audio Productions delivered the surround sound for the screening, using a specially designed system that could be transported up 16 floors in a lift and then two further floors via an exterior stairway. "The system needed to be as light and compact as possible, but obviously the system had to sound great, even outdoors in a busy city in winter," said Dan Lewis, Urban Audio's Technical Director. "We chose Nexo PS8, PS10, and LS400 loudspeakers for their quality and punch, with a Yamaha LS9 mixing the audio, controlled from an iPad using StageMix. StageMix allowed us to control the audio system from the lobby below the helipad, so we could maintain at least some warmth!"

www.yamahacommercialaudio.com

Chinese Resort Sound

The first phase of China's 20 billion yuan ($3.16 billion) Changbai Mountain International Tourism Resort opened recently, featuring five-star hotels and Asia's largest ski resort. The development includes a performing arts theatre, with audio supplied and installed by Rightway Audio Consultants. The company specified five Apex Intelli-X2 48 processors, and DiGiCo SD8 and SD10 mixing consoles.

"Audiences will be visiting the theatre from across the world and so it is very important that everything is of the highest quality, to ensure that they want to visit again," said April Fung, Rightway Business Development Co-ordinator. "We specified Apex and DiGiCo equipment because it delivers optimum audio quality and ensures the system can be used for any kind of production."

www.apex-audio.eu
www.rightwayaudio.com

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HORIZON 2012

PS4 Play

Sony has announced its much-anticipated Playstation 4 gaming console.

During an exciting two-hour 'reveal' in New York, Sony Worldwide Studios boss, Shuhei Yoshida, outlined five philosophical 'pillars' behind the new flagship hardware: Simple, Immediate, Social, Integrated, and Personalised. The box itself is unlikely to be seen until the forthcoming E3 show, though a revamped DualShock controller was flaunted. It retains the six-axis sensor, but adds a central touch pad plus a light bar that glows different colours as an aid to player identification, and will also alert gamers to various in-game information, for instance, critically low health. The controller also sports a built-in speaker and stereo headset jack.

Sony says the console's tech and architecture have been created with game developers in mind and 'specifically to their needs'. Although SCEE's key audio staff are keeping their cards close to their chests regarding the prospects for PS4 audio, the next-gen games demonstrations shown in NY spoke for themselves, sounding superb alongside some jaw-dropping visuals.

"…Shuhei Yoshida outlined five philosophical 'pillars' behind the new flagship hardware: Simple, Immediate, Social, Integrated, and Personalised."

The reported PS4 specs are:

- Main Processor: Single-chip custom processor
- CPU: x86-64 AMD 'Jaguar', 8 cores
- GPU: 1.84 TFLOPS, AMD next-generation Radeon-based graphics engine
- Memory: GDDR5 8GB
- Hard Disk Drive Built-in
- Optical Drive (read only): BD 6xCAV, DVD 8xCAV
- I/O Super-Speed USB (USB 3.0)
- Communication Ethernet (10BASE-T, 100BASE-TX, 1000BASE-T), IEEE 802.11 b/g/n
- Bluetooth 2.1 (EDR)
- AV output HDMI
- Analogue-AV out
- Digital Output (optical)

AES 49 Wrapped

The Audio Engineering Society's 49th International Conference on Audio for Games took place in London, UK, from February 6-8. *Audio Media* caught up with DTS R&D wizard and conference chair, Michael Kelly to hear his verdict on events.

AM: How was the conference content received?

We had great feedback about the mixture and quality of content, and were very pleased with the balance of academic versus industry practice. The HDR (high dynamic range mixing) audio session went down well. It's currently a very relevant topic, and the session covered a lot of detail on the principles behind HDR and the right contexts in which to use it. This kind of information is exactly the type of thing we want to communicate at the conference. A lot of people also commented on the web-audio session, which contained much new information on the subject. Other than that, we had a very positive response to Mike Caveizel's "Planes, Trains, and Automobiles" session (both content and presenter), Stephan Schutze's "How Sound Affects Realities" session, and Scott Selfon's "Crossing The Streams" session, which took a fascinating historic and contemporary look at the novel use of audio in games. We also received good feedback about the hands-on sessions where people evidently learned a lot – though next time we need to make them even more interactive. Feedback confirms that highlights were the *Hitman: Absolution* talk (which made a great case-study for a lot of the rest of the conference), and Scanner's talk was excellent – a nice side-step from the other content. In a way, the biggest highlight of all is having three days to talk directly to people behind some of today's and tomorrow's top game titles.

AM: What do you think, overall, attendees took away from the conference?

I guess this year's implicit theme was 'inspiration', and I think overwhelmingly that attendees left feeling inspired about their work and possibilities for the future. Scanner's talk hit this spot as a theme. Though Scanner (aka Robin Rimbaud) doesn't work in games, a number of developers commented directly how some key points he made resonated with them. The other core takeaway is the individual conversations people have in the social events, breaks, and lunches – I think this is a main objective of the conference: being in the same room with other people who have similar questions and hopefully some answers too. We had two evening receptions specifically for this purpose. Combined with the breaks and lunches (deliberately held on-site to encourage networking) and the inclusion of poster sessions over lunch, as well as the hands-on sessions, this meant people were able to make the very most of 'talking shop'.

Michael Kelly speaking at the conference.

AM: How is AES seeking to respond to the changing nature of the games market?

As chairs of the technical committee in this area, Steve Martz and I are very keen to bring technology experts together who are essentially solving the same kinds of problems in different areas of the broad spectrum that now make up the games market, hence the Web Audio session content, some of which may have been new to people immersed in the AAA games market, but extremely relevant – the kind of content we hope to bring together that people might not come across directly in their day-to-day work. Given the broad coverage of audio that the AES can achieve, we see a key role in providing a diverse forum to share information about game audio through publications, this conference series, and our larger US conventions. We're always keen to hear from industry experts who would like to be more involved too. The next games-focused AES conference is likely to be around February 2015.

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As a sound engineer, you need to have a reliable and precise monitor system that reproduces the source sound neutrally. You want an uncolored and undistorted sound with flat frequency response in all situations. A monitor that is capable of automatically adapting to acoustical environments and correcting for levels, delays and room calibration is an indispensable tool for a sound professional. A Smart Active Monitor (SAM) addresses all these demanding tasks. A SAM system can be controlled with digital networking, enabling you to build highly flexible computer controlled systems of monitors. The acoustical features of SAMs can be optimized with software calibration features for different working styles or client demands. SAM reflects the most advanced monitoring system features available in the audio industry.
www.genelec.com

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A Vision Of Radio's Top 40

Ask just about any British person who grew up during the 1970s what their abiding memories of their childhood are and it's almost certain they'll go on about listening to the BBC Radio 1 Top 40 on a Sunday evening. *The Chart Show* remains a fixture in the schedules of both R1 and many of its commercial rivals, but the charts themselves seem less compelling than those of 40 or so years ago.

Despite the decline in sales of singles and the rise of downloads, radio stations still see the Top 40 as a big audience puller. The first radio chart show was broadcast by Radio Luxembourg in 1949. Presenter Teddy Johnson, a former dance band singer, counted down a Top 20 based on sales of sheet music.

The BBC Chart Show first aired under the title *Pick of the Pops* in 1955. Since then it has had 20 long-term presenters, plus some shorter term fill-ins, including suave David Jacobs, fast-talking catchphrase generator Alan Freeman, R1 daytime stalwarts Simon Bates and Tony Blackburn, Larynx on Legs Tommy Vance, Bruno Brookes and, until the end of last year, Reggie Yates.

A big shake-up came in 1972 when producer Johnnie Beerling, inspired by the American Top 40 presented by Casey Kasem, decided to focus on facts and figures rather than personality. *Pick of the Pops*, still with Alan "Greetings, Pop Pickers!" Freeman, continued as a nostalgia show while the chart run-down became the *Solid Gold 60*, presented by dark voiced actor Tom Browne.

A New Look

In the following 31 years the BBC chart has been through some big format – and name – changes. This year brought another revamp, with the show titled *The Official Chart*, fronted by Jameela Jamil, the first woman to present the run-down solo. Another recently introduced element is visualisation. This is the buzz name for the much-maligned webcam, which gave listeners with the time and inclination to boot up their computers the chance to see what a presenter did in between records.

This visual aspect was part of the pitch behind DAB in the 1990s, allowing people to "see radio". The technology at the time was basic – and web streaming was sluggish compared to today – so it was seen as a slightly unnecessary novelty. In the 21st century of connected devices of all descriptions – smartphones, tablets, and whatever white space development brings – people can get pictures anywhere they are, so having a visual presence is as important for radio as it is for TV.

> "A newspaper critic complained that head of visualisation for a radio station was the equivalent of being head of stairs in a bungalow."
>
> Joe Harland, Radio 1 & 1Xtra

To exploit this the BBC has built new studios at Broadcasting House in London that have vision equipment integrated with standard audio equipment. The new facilities for Radio 1 and 1Xtra were designed to be visually striking as well as practical and feature video technology intended to show what is going on but not detract from the programmes.

During last year's Radio Academy TechCon event in Salford, Joe Harland, head of visualisation for R1 and 1Xtra, acknowledged the apparent contradiction of his job: "A newspaper critic complained that head of visualisation for a radio station was the equivalent of being head of stairs in a bungalow. But with the growth of the mobile market we need to be able to say that if a listener has a screen – of whatever type – we are on it."

Moving R1 and 1Xtra into the new BH was, Harland explained, the opportunity to "do visualisation" from the beginning. "You need to have it embedded as part of the production process," he said, "and although the studios look nice they don't have to look like TV studios."

BBC news and sport channel Radio 5 Live has been working with visualisation systems for some time, both in its old London studios and now at its base in Salford. The camera switching system was designed by BCD Audio and is activated by the microphones, with the cameras automatically showing the person speaking.

R1/1Xtra's studios are based on Studer OnAir 3000 consoles and VCS automation for the audio, while visualisation is taken care of by several Sony pan-tilt-zoom cameras, a controllable lighting rig, hard disk video recorder, and a Blackmagic Design routing system. Camera selection is through a custom software program called TriggerMix.

Harland said he wanted the automated capability for many shows but also the option to have the system run by an operator who could select who was in shot. "If the Chart Show DJ is announcing that the band who are guests in the studio are number one, the audience wants to see their reaction, not the presenter," he observed.

Anecdotal evidence shows that more teenagers are listening to radio – only with a screen nearby so they can see what is going on. Anything that keeps people tuning in to radio can only be a good thing, but sometimes imagining what an on-air personality looks like or is getting up to is preferable to the reality. After all, the phrase "a good face for radio" was coined for a good reason.

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EVI Audio Entertains

Bosch Communications Systems once again invited international distribution partners to its annual in-house trade fair (Hausmesse) in Straubing. This year, Robert Hesse, Vice President Sales Communication EMEA, and Managing Director of EVI Audio GmbH, and his team welcomed some 150 business partners from Europe, Middle East, and Africa. The programme included a business update, best in class presentations, breakouts, product demos and guided tours of the factory and service facility.

Aaron Chisena (Product Manager Electro-Voice Mobile Audio) and Markus Schmittinger (Product Marketing Manager) previewed a major new loudspeaker line from Electro-Voice – shortly to be unveiled to the general public – and the agenda also included, under the theme 'Growth3', a recap of the products successfully introduced in 2012 and an exegesis of residual growth potential.

The product presentations continued with the A-Line loudspeaker family, the Vertical Array System, the PowerMate 600-3 powered mixer, and the CMS 600-3 mixer, all from Dynacord. The successful Electro-Voice ZXA1-Sub and its passive counterpart introduced in October, the ZX1-Sub, were also highlighted.

"The Growth3 theme focuses on the wide range of solutions and strong partnership we can offer with our brands Electro-Voice and Dynacord across our three market segments – mobile audio, fixed installation, and rental," explains Robert Hesse.

The programme also included practical workshops dealing with subjects such as sound reinforcement design for fixed installations, the optimisation of distribution channels, and the new media networking architecture OMNEO.

"This year, the personal exchanges we enjoyed with our partners were particularly valuable," comments Robert Hesse, "After all, day-to-day business for the most part provides far too little occasion for personal contact. The 2013 Hausmesse was an excellent kick-off to a new business year for which we have the highest expectations."

As part of the the fringe programme, Robert Hesse and his team welcomed guests in the stadium of the Straubing Tigers, who play in German ice hockey's highest division. Following a reception with refreshments in the VIP lounge, participants were invited to test their prowess on the ice in a variety of competitions. The following evening saw the presentation of the Distributor of the Year awards in Straubing's Mannschaftscasino, which was the business highlight of the week; this year the coveted awards went to eight enterprises in all: from Europe, Supersonic Svenska AB (Sweden), H.S.A. AUDIO SRL (Rumania), Ruton S (Russia), and Omikron Electronics Ltd. (Greece); from Africa, ADB (Tunisia), and Sistec (Angola); and from the Middle East, Prosonic (United Arab Emirates), and Amac (Lebanon).

"Actually, all our distribution partners deserved an award – such is the strength, loyalty, and steadfastness of the commitment evinced by our friends in the industry," says Hesse. "Even more important than any award, however, is the team spirit, the friendly camaraderie that prevails within the Bosch Communications Systems family. That motivates us and gives us added momentum entering a new business year that couldn't have got off to a better start."

EXHIBITION NEWS

Nexo Takes Demo To Frankfurt

For the first time in many years, Nexo will host an acoustic demo booth on its real estate, combining technical presentations in the Nexo Academy with live demonstrations of its new LS18 sub with classic PS Series cabinets. Overhead, the flown line arrays will include three different configurations of Nexo's flagship modular line array STM, and, for the first time, the new LS18 sub flown inline with an array of Geo S12.

Nexo will present three new products at the PL+S show this year, as well as ongoing refinements to the STM Series and its accessories.

With the launch of the LS18 subbass cabinet, Nexo brings new versatility to two of its best-selling product ranges. The LS18 is compatible with both the Geo S12 line array and the PS Series cabinets, and will please Nexo customers with its agreeable price:dB ratio, says the company.

As the order book for the STM Series touring line array continues to grow, Nexo has released STMi, a trio of installation models for high SPL applications, such as theatres and auditoria, houses of worship, and live music venues.

STMi extends the concept of Scale Through Modularity to provide designers of fixed-installation systems with a series of three cabinets (main, bass, and sub), which can be configured in any combination to achieve the desired frequency response or power.

STMi M46 Main and STMi B112 bass cabinets are injection-moulded polyurethane enclosures, which are presented with a rigid rigging system with no moving parts. The STMi toolkit is completed by a single 18-inch sub that can be flown or ground-stacked in line, running omnidirectional or cardioid modes.

MULTI-PURPOSE VENUE

Theatre Ulm

The Theater Ulm has expanded its intercom system with an Artist solution by Riedel Communications. Riedel, one of the leading providers of real-time networks for video, audio, and communications, delivered a comprehensive Artist Digital Matrix Intercom system that also allows for radio integration.

The Theater Ulm, founded 1641, is a multi-stage house offering opera, play, and ballet. As a result of general renovations, the Theater in Ulm has received a new Riedel Artist Digital Matrix Intercom system.

At the heart of the installation is a Riedel Artist 32 mainframe that lays the foundation for the communications infrastructure. Due to Artist's free scalability, Artist systems can be easily expanded to form infrastructures with up to 1024 x 1024 non-blocking ports per installation.

"Especially the scalability of the Artist system was really important to us. It allows for flexible planning and write-off. Only this way, it is possible for us to plan cost-effective systems that correlate to our applications", said Karlheinz Fohlert, Chief Technician for audio and video at Theater Ulm.

A total of 22 Artist 1100 and 5100 series control panels are used at the theatre for various positions such as stage management or stage entry. The Artist 1100 series features talk buttons with integrated OLED displays allowing for a maximum of readability. The Artist 5100 series is the cost effective entry into the world of Artist intercom systems. They feature an eight digit LCD display that can be doubled with a shift key.

A Riedel RiFace integrates the theatre's radio infrastructure into the wired intercom system. This way radios can directly talk to a control panel or vice versa.

BIRTHDAY

Riedel Celebrates 25th Anniversary

Riedel Communications, one of the leading providers of real-time networks for video, audio, and communications, celebrated its 25th anniversary on its premises in Wuppertal.

More than 1,400 guests from the broadcast, event, theatre, and industry markets joined the celebration. The event included a total of five different areas with accessible installations, 3D project mappings, outdoor whirlpools, and a captivating fire-show. Numerous acts in changing locations from Klezmer and jazz performances over high wire acrobats to a heavy metal playing robot band were the ingredients for an inspiring night.

"It is incredible, what my team realised in the last 25 years", Thomas Riedel remarks. "Their dedication and passion play a vital role in our success. We are looking forward to the coming years. We already have some interesting ideas for projects and products lined up."

The event marked a successful finale to the 25th year of Riedel Communications. Projects in 2012 include amongst numerous other events the Olympic Games, the UEFA Euro 2012, and the Red Bull Stratos project. The event was realised in cooperation with Lleyendecker, Fischer and Friends, Creative Technology, Kirberg Catering, Scenum, and Ortvision.

RENTAL COMPANY

Mega Audio Appoints Sales Director

Pro audio distributor Mega Audio GmbH has hired Harald von Falkenstein as new Sales Director. His tasks include customer liaison and support for the key accounts, as well as the active shaping of the strategic development of the company. Further he will lead the internal and external sales staff including sales reps and product managers.

After almost 10 years as International Sales Manager for dBTechnologies, Falkenstein returns to the national circuit in Germany. His career to date encompasses internships in music retail and wholesale as well as an extended stay in the UK working for a large MI-and pro audio supplier.

"I am looking forward to the new challenge and I am extremly excited to work with Burkhard Elsner and his team," he says.

Burkhard Elsner, CEO of Mega Audio comments, "With Harald von Falkenstein we are adding an experienced and versatile personality to our team. I am very confident that he will enrich the company with his creativity and innovation and lead it to new success. I am looking forward to a long and fruitful cooperation."

Mega Audio provides service and support as a distributor in Germany for brands like DPA microphones, Midas mixing consoles, and sE Electronics; and has done so for the last 24 years.

Trance

Trance is the latest Danny Boyle masterpiece, about to hit cinemas around the world. It's a story of crime and intrigue, but with a twist – a fine art auctioneer, mixed up with a criminal gang, turns to hypnosis to help them recover a lost painting. As the film develops, the audience is kept guessing – negotiating the ambiguous division between reality and trance.

For sound, Danny Boyle turned to a trusted team. At the final mix in Pinewood Studio's Powell Theatre were Sound 24's Glenn Freemantle (Supervising Sound Editor, Sound Designer), Niv Adiri (Sound Design Editor, Sound Re-recording Mixer, and Ian Tapp (Sound Re-recording Mixer).

"Sometimes you're not sure if you're in the trance or you're not in the trance; you're not supposed to be giving that away… The clues are there, they're in the story telling… and gradually build through the film."
Glenn Freemantle

To add to this, the main 7.1 mix was followed by an additional Atmos mix phase. The team has been working with Dolby on developing Atmos for some time, and this was a great opportunity to test the state of the art.

The nature of film itself presents a few challenges, especially when it comes to supporting the mystery within the plot, so I was keen to find out what the approach was. Freemantle starts by explaining that the key to this film was how they dealt with and developed the main 'spaces'. In this instance a space can be a point of view, or the trance state and so on, rather than literal environments. These spaces needed to be defined, but there also had to be mystery and ambiguity, so the distinctions start subtle and build through the film. "Sometimes you're not sure if you're in the trance or you're not in the trance; you're not supposed to be giving that away," explains Freemantle. "The clues are there, they're in the story telling... and gradually build through the film."

Tapp: "In Atmos, for example, with the dialogue, if you use the front overhead to basically increase the size of it, and build that up through the scene – taking it out of the screen a little bit, into the room; not necessarily so that you'd even notice, but so you would feel. That was one thing. The music is similar – it builds up through the scene through the overheads and the rest of the room, but again in a subtle way.

"There are a few moments where the sound would actually move in and the music would move in, but there wasn't a lot of that – it's not a show-off project – it was just a little bit of help at that point."

"And the sound effects..." continues Adiri, "Well, once you are in his head, you try to position the sounds where you would hear them from. There's sirens and alarms that you would try to play as he would hear it at that point, and how he would remember them at that time."

This positioning and development of the spaces in trance become ever more important as the plot thickens. New perspectives on recollections and situations demand different and developed treatment – realities that might have been, become ambiguities in the trance state.

"As the film progresses," continues Freemantle, "There are certain obvious points, because it runs between two parallels – what he's seeing, and what he *thinks* he's seeing. You know that he's in this space by then – visually and sonically – so the sound becomes a lot more 'designed' in those areas, with a lot of movement. Then it becomes a lot more dynamic." All aspects – the music, effects, and dialogue treatments contribute to this new dynamic development, shifting both in both space and focus.

This kind of developments requires planning, creativity, and a mastery of the sonic palette. Freemantle: "It is more difficult, because you're trying to put over a style and emotional content of the film without being too obvious all the time. Blowing up a building or a crashing a car are easy; they are what they are..."

Unreality

It makes sense then, that in order to start messing with reality, you need to start with reality. This was to become a particularly strong foundation of *Trance*. The team started from bare dialogues and worked forwards from there. "We did a big shoot and a lot of it's round London," says Freemantle. "We wanted all different sounds of London, so we did quite a few days of day and night shooting, we captured car parks and trains – all different noises at different times of the day."

The team recorded all-new interiors and exteriors, all of the vehicles, and more. Freemantle: "We basically shot everything for the whole film... London is amazing at night, and it does change – sometimes in a sinister way. Sometimes you get an empty car park at night with a voice somewhere far away, and it works brilliantly for the film. Picking out these little natural moments that are natural and using those in that way. It was good."

In one instance, Niv Adiri describes recording some in-car Foley actually in the car that is used in the film – simply to get as much detail as possible into the reality.

Concept, Credit, And Kudos

Danny Boyle obviously comes with a certain amount of kudos, and especially because he does seem to be part of that sable of directors outwardly respected as much for their down-to-earth credibility as their credit list. Also to his credit, it seems he trusts the experts to carry his vision forward: "He gives us the concept of the film," says Freemantle. "Danny's brilliant in that respect; he doesn't restrain you to anything right from the off. Whenever I've worked with him, the approach is from a feel for the film, not just telling you what to do. That opens things up – there are no boundaries, you're not working between two points. There are no points.

"You talk the film through with him, you talk about the concept of where he wants to go to, but not specific sounds that you're going to put in there.'

Of course, there are some parameters, and those come as much from a long-standing working relationship and the trust built from that. The other standing guidance on this film was a developing score by *Underworld*'s Rick Smith. The sound team worked amongst music cues, where possible, which gave a tonal guidance to the sound design.

It's probably more important on a film like *Trance* that the director trusts the sound team. After all, they have the experience and expertise to know what is possible, what repertoire can be brought to bear, and how to go about it. That's a far cry from identifying a gun shot and inserting a bang.

Mind you, even when the action does get going on *Trance*, the team remain mindful of space and point of view. Freemantle: "Towards the end of it, there's a big action scene where we do blow things up and throw a few things around and everything like that, and that's done in a very stylish way as well, very abstract, not overlapping sounds all the time, very pin-pointed moments of the cut. It becomes very dynamic, so when we do this action sequence, there are moments, and the music that drives over time will give you that shape, so the dynamic, the sound design within that sequence, becomes very dynamic on certain cuts, and very specific. Very clean and very clear – very modern in that way."

www.sound24.co.uk
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"It is more difficult, because you're trying to put over a style and emotional content of the film without being too obvious all the time. Blowing up a building or a crashing a car are easy; they are what they are..."
Glenn Freemantle, Supervising Sound Editor

The Atmos Report

There are quite a few films that have now been remixed for Dolby's new Object-based platform, Atmos, and the pace is quickening even though the mixer's toolset is still in the development phase. Indeed, *Trance* is the first British film to be mixed in the UK, in Atmos, and Pinewood studios has equipped the Powell and Korda theatres for Atmos mixing. The studios believe it to be one of the most significant improvements the in cinema experience for some time.

I talked to the *Trance* team about their experience with the system.

Glenn Freemantle, Sound 24: "It's great, to start with! It's an upgrade... You feel a difference; you feel an immersive difference.

"Just on that basis it's a huge improvement. It makes you concentrate more on the film, and it isn't just from me, this was from everybody. The three of us had done the Atmos mix by ourselves. When it came to playback everyone said, 'wow, I see things in the picture now. I'm immersed into it.' You feel like you're more in the picture... Even without creating thousands of objects –it's not the gimmicks... it really is an improvement to the way an audience will feel the film."

Ian Tapp, Pinewood Studios: "You get more from it, but it makes what we're doing more subtle. It's less obvious when you're moving things off the screen because the surround is the same sort of quality as the screen channel."

Freemantle: "You're not going to necessarily move more than you ever did. Even in 7.1 we were trying to move at the right time. But now the transitions are smooth.

"We were going to do this film [in Atmos] right from the beginning, but we didn't because we didn't think the tools were quite fast enough yet for the way Danny [Boyle] would like to mix."

Niv Adiri, Sound 24: "Once we'd played it - even with just the 7.1 in the Atmos set-up, it got such a lift straight away, because of the sheer quality you get in the room now. Even without using the overheads. It gives the film a lift from the beginning.

"Then you realise we don't need to do a lot, we just need to choose our moments and to do what we want to make it feel a bit more special – to make spaces feel bigger and higher."

Freemantle: With this film, we didn't want to change the integrity of the mix we'd already done. It's mixed in a certain way to keep the confusion going. It's a really tight mix. So when it starts to build, we gradually build it slowly through the cues... Its a ride, and Atmos worked brilliantly for that."

Adiri: 'It is quite emotional. Atmos is something that affects you quite a lot."

Ian Tapp, Pinewood: "Yes, it can be quite physical because of the quality you get from the surrounds."

Freemnantle: "Danny was knocked out.... And Rick Smith was speechless...

"In reviews they talk about how they pan things, rather than how it feels for an audience. For me it's not always what it sounds like... It should be emotional content, not just sound content.

"So you don't want to detach that sound from the film. We were very conscious that everything was within that film, within that space. It was there for a reason.

"A gimmick takes you away from the film.

"Sometimes we thought we could try it more up and above, and then we'd realise it sounded cool, but a bit gimmicky. So we'd settle on a split thing that enabled us to do that, but without the gimmick."

Paul Mac, Audio Media: You did a direct transfer of the 7.1 into 9.1 to start, then took it from there?

Adiri: "Yes. Initially the 7.1 went into the 9.1 beds and we played it back. There was a little adjustment in the surounds because the monitor levels are higher. And then we just decided what we wanted to reinforce... to work on."

Freemantle: "A lot of it – what you pan in 7.1 – we were able to move that more smoothly. Where you want to go, you're able to make that sweeter. When

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you want to go from the back to the front, for example, well, you can actually take it from the back to the front now, rather than trying to trick it by hold the front and crossing over somehow.

"It was beautiful to do. There were some moments that were great for that.

"You want to create a two hour film. It's about the dynamics of it; how you use the sound, and how you use the room as well... how you use it narrow, then come out, then build it wide. Otherwise you don't have those moments. If you use them all the time, you don't have the dynamic.

"Also, people say you don't need Atmos for a small film. I say, 'so what – if you go up in quality, it's got to be worth it in any film you do.' Every film has a score. If you can make that score sound more beautiful, why wouldn't you want to do it?"

Mac: Will Atmos eventually require change in recorded elements?

Adiri: "Location recording for us – recording sound effects – will change. We are already recording them in a different way to what we did three or four years ago. Now you have more channels to use."

Freemantle: "And I was talking to Danny about it before we did our mix – about how a director might shoot the film with this in mind.

"He agreed you would on certain things. Especially in genres like horror.... If you've got more dimensions available to you, things will change."

Tapp: "Somebody with Danny's creativity could embrace that."

"...people say you don't need Atmos for a small film. I say, 'so what – if you go up in quality, it's got to be worth it in any film you do.' Every film has a score. If you can make that score sound more beautiful, why wouldn't you want to do it?"
Glenn Freemantle

Sound Design Editor	Ben Barker
Sound Effects Editors	Danny Freemantle
	Eilam Hoffman
Dialogue Editor	Gillian Dodders
Foley Editor	Hugo Adams
Assistant Sound Editors	Emilie O'Connor
	Nicholas Freemantle

Mastering By The Beach

360 Mastering, London

Jim Evans checks out a new facility in Sussex by the sea, UK.

360 Mastering, based in West London where it has built an impressive reputation for the high quality of its work, has established a new facility in a converted light industrial building just off the sea front in Hastings, with mastering engineers Dick Beetham and Dave Turner in residence.

The new complex has been designed and built by Eastlake Audio and offers full mastering/editing services in a unit that is fully sound-proofed and able to work 24/7 without upsetting the neighbours. For those who still believe London is where the studio action should be, 360 is less than ninety minutes from the metropolis but just minutes from the seafront, seafood outlets, and much more.

Dick Beetham has been a sound engineer for over 25 years and a mastering engineer for 20. During this time he has earned his place among the world's most talented and skilful mastering engineers, and his credits include 45 UK No.1 singles, twenty UK No.1 albums, over thirty platinum and multi-platinum albums, Grammy and Brit Award winning singles and albums, Mercury Music Prize and AIM Award winning albums.

So why the move to the South Coast? "Apart from the fact that we live here, the property in Fulham where we were based for 12 years was scheduled for redevelopment to housing," says Beetham whose credits include The Pet Shop Boys and Scissor Sisters. "It took a lot of searching, but we eventually found this place and realised it was the answer. It used partitioned offices and also incorporated a builder's yard. What made it perfect for what we want to do is that the whole back section is built on solid ground. As I understand it, we couldn't build a studio like this in a traditional building."

"The isolation brief effectively given was 'that there should be no possibility of disturbance to adjoining properties under any circumstances even when monitoring extreme low-frequency, synthesised music material at maximum volume!'"
David Hawkins, Eastlake

So how did Eastlake come into the equation? "I'd known David for many years and essentially when we decided to go ahead with this project, he was the first person we thought of. We were also aware of the work he had done at Galaxy Studios in Belgium where underfloor springs, like we have utilised here, were seriously involved."

No Room For Error

Regarding the design and construction, Eastlake's David Hawkins reports, "The isolation brief effectively given was 'that there should be no possibility of disturbance to adjoining properties under any circumstances even when monitoring extreme low-frequency, synthesised music material at maximum volume!'" Easy...

"Measurements were therefore made at 360 Mastering's Fulham facility of the levels and frequency distribution within 'worst-case' Dub-Step programme, and the really significant LF content right down to 25Hz. raised eyebrows. At the same time, Reverberation Time (RT60) values of the Fulham facility were recorded for later reference.

"Where the building in which a new-build, isolated, audio facility is to be located is sufficiently large, it is common practice to place the audio facility as far as practically possible away from residential party walls – for example by interposing corridors, support offices etc. between the audio facility and the neighbours' walls. In the Hastings case, the width of the building simply did not allow this luxury. Additionally, the available height was limited by the fixed height of the building's roof. >

"The starting point was therefore to maximise the integrity of the party walls. This started with replacing several completely missing bricks, then forming additional blockwork sections between structural piers. Also, the existing pitched lightweight roof was improved.

"The internal construction that would be required to deliver the necessary overall isolation value (particularly that at low frequencies) was realised using walls constructed of extremely dense (circa 2,000Kg./M3.)concrete blocks supported on 120 plus coil-spring mounts distributed around the room's perimeter. The isolation ceiling was designed in two parts – the first spanning between the new isolation walls and in turn itself supporting a secondary ceiling isolated from it via resilient rubber mounts.

"In practical terms, the four isolation walls were required to be built upwards course by course in 'corkscrew' fashion so that all the springs were sequentially loaded.

"At the conclusion of isolation wall and ceiling construction (and after careful verification that the deflection of each wall isolation spring was correct), the isolated concrete floor of the room was separately cast – also supported on 90 plus coil-spring mounts.

"The 500Hz. RT60 (Reverberation Time) value which had been measured at the Fulham facility was confirmed as an appropriate one for the mastering function and the Hastings facility was designed to achieve the same value. This target was smoothly achieved by means of absorbers of several types, which cover most of the wall and ceiling surfaces behind the fabric wall covering."

The Heart Of The Studio

Equipment-wise, 360's main studio centres around a PMC-MB2S-XBD-A active monitoring system at its heart. "Just the right size for the room," affirms Beetham. "I have used PMC for 20 years and they are the best you can use for mastering.

"The Maselec MTC-2 – the console and monitor controller of choice in mastering studios around the world – takes perfect care of the analogue signal control and interfacing, and we can choose from our extensive range of analogue and digital hardware to make any necessary corrections or enhancements, and shape the sound and feel of your music to enable it to reach its full sonic potential.

"Once inside the Sadie 6 mastering workstation, any editing or track sequencing is handled digitally, along with preparation of master formats, from simple WAV files and mp3s to fully prepared CD masters and reference discs."

360's work comes from across the music business. "We do have a lot of Lot of major record label clients," says Beetham. "Plus producer clients, artist clients, and many from overseas – Italy, Germany, Russia, Australia, South America… The way we work now, it's a global business. Today, so much of it is conducted via the internet."

As to future developments, Beetham is planning to set up another facility nearer London, and to have a small, portable rig to travel to clients with (although he will still work in Hastings for major projects – that will remain his primary facility). To this end, he has recently bought some compact PMCs to monitor on for the portable rig he's putting together: a pair of DB1S-As and the 'travel bags' that go with them, so he can carry them with him.

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Fairfield Halls

A regional venue with a dated sound system, struggling to survive in today's difficult market – a familiar story. Jo Fletcher-Cross looks at how one venue has updated and put itself ahead of the pack.

Croydon. Chances are, that name will not conjure up a happy picture: grey, municipal buildings, a dreary suburb of London. However, to assume that that's all there is to the area is to do it a massive disservice. One of those municipal buildings is Fairfield Halls, a concert hall long favoured by chamber orchestras for its acoustic quality; scene of gigs in the 60s and 70s by bands like The Beatles and The Rolling Stones; and the place where a couple of cleaners, Raymond Burns and Chris Millar – aka Captain Sensible and Rat Scabies – met and practised guitar in the toilets; The Damned were formed, and punk was born.

In recent years, however, Fairfield has struggled. "It was fine for The Beatles – well you couldn't hear them anyway, because the girls were all screaming, so it didn't matter," said CEO Simon Thomsett. "But audiences have become more demanding because they can get really good quality sound now across lots of places. People like AEG and O2, with the arenas, have created whole new places where you can go and hear music, and in West End musicals, the standard has gone up. And now people are used to that, they want it and they expect it. We were desperately behind the times, and it meant you'd get some bands here, or even stand up comics, and as soon as you amplified them you realised two things. One is it didn't work, you couldn't hear it properly; and the second is, it's a fantastic concert hall for acoustic sound – you can stand on there and speak and be heard at the back, you can play orchestral music and it's brilliant. But the minute you tinker with it, you amplify it or put it through any kind of electronic system, it just rings around. It's horrible, painful. I've heard some awful things in here, because we were just behind the times by 20, 30 years."

"What we're finding now, now that we've got this system – it's now about the engineers knowing how to mix for a concert hall…"
Chris Whybrow

"…audiences have become more demanding because they can get really good quality sound now across lots of places. …And now people are used to that, they want it and they expect it."
Simon Thomsett

Technical Manager Chris Whybrow agreed. "We were struggling with comedians, and that kind of thing. The public's perception now is all to do with them being on TV, they see things like *Live At The Apollo*, a comedian in a large venue and the sound is crystal clear; people are now used to having that clarity of sound. Before we had to hire in systems as ours didn't cut it."

Making The Call

Orbital Sound was called in to help upgrade the technical facilities. The Fairfield Halls complex comprises three interlinked venues: the 1,800-seat Concert Hall, the 750-seat Ashcroft Theatre, and the multi-purpose Arnhem Gallery that can accommodate up to 500 people. Forming the first part of the technical upgrade, Orbital installed a new sound reinforcement system into the >

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within the complex. The original mono Meyer Sound system from the Concert Hall – installed in 1987 – was shipped to Orbital for a revamp, and re-installed in a distributed-sound configuration in the Ashcroft Theatre, augmented by new Meyer UPM point-source loudspeakers and USW subs. Similarly, the d&b audiotechnik system originally installed in the Ashcroft, and based around C7 loudspeakers, has been reconfigured as a demountable system – primarily for events in the Arnhem Gallery, but capable of deployment anywhere.

> Concert Hall, with the principal components comprising d&b audiotechnik Q1 line arrays, augmented by B4 27A cardioid subs, and a Yamaha M7CL console with DME64 mix engine. The Q1 array is complemented by a T-series centre-fill cluster, using three T110L d&b audiotechnik loudspeakers.

The concert hall refurbishment allowed much of the outgoing equipment to be redeployed, to improve the audio performance in other spaces

"Our ethos with this project was to re-use as much of our existing equipment and technical infrastructure as was feasible," explained Chris Whybrow. "We have managed to retain the analogue infrastructure, for example, re-terminating cables and updating patchbays where necessary, but keeping the analogue cabling itself pretty much intact. It didn't need replacing, and there's no point in spending valuable budget where it's not required."

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In The Detail

David Bartholemeusz was the Project Co-ordinator and Site Manager at Fairfield for Orbital. "The brief from Chris [Whybrow] was that he wanted multiple inputs and multiple setups so that if someone came in with, say for a lecture, a lectern and a small mixing desk, they could plug one thing in and it would feed the whole system. So if someone wanted stereo, they wanted some dance music or something, they could plug two in and it still fed everything. And then, more complicated, there's a four way as well, so it splits the system up a little bit differently and gives more control, and an eight way, so you have left, right, subs, centre, front field, delays – everything separate so that the operator can just tweak things. They do a lot of one night stuff; people just come in at 10am and that's it. In the past, people were bringing in sound systems, stacking them up, and it took them hours; whereas now they can just say, 'it's ready to go.'" This makes life easier for the crew at Fairfield: "They've got a high turnover of shows – up to seven shows a week," said Bartholemeusz. "The crew are busy, so to simplify as much as they could was good. They can just walk up and it works. Engineers will be happy – if they're doing one-nighter tours all over the place, they'll be happy not to put the PA up for one day, just leave it all in the can and plug in some mics. They can just plug in their desk at the front."

Thinking Green

The change in systems doesn't just make it easier to work in the venues, it also means more revenue – always essential in a performing arts venue, and even more vital now when everyone is feeling the squeeze. "We've got Jools Holland coming round in May, which is a regular booking" said Thomsett. "It used to cost us £2,500 in extra kit that we had to hire in so that Jools Holland could be heard properly; now it doesn't, we've just got it on the shelf. That makes a difference."

That difference is not just in the concert hall; the changes in the theatre are also making a big difference in what Fairfield can programme. "There is a huge demand for musicals, and we couldn't really do it before. We just didn't didn't dare do musicals – the cost is so great and we knew we had to get the kit in, and we couldn't do it. Whereas now, actually, we're set up, and we can dare to do that." Like in the concert hall, the 'new' set-up in the theatre is making life much easier. "We had Paul Carrack in on a Sunday, and *Blood Brothers* opened on the Monday night. It was impressive. They got out a major rock and pop gig and they got in a big musical, with a moving set and a big sound check, and there it was on stage at 7.45 on the Monday night."

The changes have also brought about some interesting new challenges. "What we're finding now, now that we've got this system – it's now about the engineers knowing how to mix for a concert hall," explained Whybrow. "The acoustic in the concert hall is designed for acoustic instruments. It's a long delay. Normally when you're mixing for bands, the halls you go to, you're used to quite a dead acoustic. They come in here and they tried to drive it hard and actually, sometimes, less is more. So our problems now aren't with the system itself, it's with the engineers and how they're mixing for the room."

There's A 'But'…

Not everything has been perfect, there has been a bedding-in period where tweaks have had to be made – and that can be quite tricky in a venue like Fairfield, where there is so much going on. "I'd say we run at about an 80-90% programming level. I've got a staff of 10 and I can guarantee that I'll be calling in zero hours every week. Every single day of the week there's something going on in one of the spaces, if not two,

and also the ancillary rooms as well," said Chris Whybrow. "That's what keeps it interesting, the variety of the programmes, one day you've got cage fighting through to classical concerts or a musical, so there's lots of things to be done. We do anything and everything." Bellowhead were playing a few days after I visited, the first big test for the system, and when I spoke to Whybrow after the concert, he was pleased with how it had performed. "The main thing now is to make people aware, I think the concert hall system is a really good system and it's suitable for these bands and live acts. It's getting that message out there."

That's a challenge that Simon Thomsett is addressing. The Bellowhead gig was a bit of a watershed moment for the venue. "That's sold out, we've got 1,500 people coming, and there's thousands of them [the band], they'll fill the stage. So that's a real test of the kit. We wouldn't have dared do that before, because we know we wouldn't have had a great sound." More big gigs are lined up for the rest of the year, and they are beginning to position themselves as a serious venue. "In a yeeear's time we're going to have a stand at the ILMC (the International Live Music Conference), so we can really make a big splash and say, here we are, properly fit for purpose in the 21st century. There is a step change in the things that we can get. It's not instant, you've got to convince people, you have to show them and demonstrate you can do it. Just us saying that – well, we would say that, wouldn't we? But things like Bellowhead is a big gig for us, there's industry focus on us wondering if we can pull it off, and if we can – well that will lead to similar things. We need to do it again and again and again. It's a confidence building thing. You know, 1,500 capacity, we can earn decent money. And it's not an awful soulless venue, where you're going, well that is Bob Dylan but you couldn't tell, you're watching the TV for most of it. In our place, you're there, you're on top of them, you can see them."

Thomsett finishes up with a positive message. "The fact is, Croydon's time has come." Whether Croydon will shake off its negative image remains to be seen. Fairfield Halls is certainly leading the way.

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Live Compact Consoles

You know you want a console, you know you want something compact, but what else do you need to know before investing? Jono Buchanan and Andy Legg from absolutemusic break it down for you...

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Digital Benefits

The architecture of a digital console allows for a greater number of auxes and groups than an analogue console. These can be configured on-the-fly to allow for mono/stereo operation and pre-/post-fader mixes, which is particularly useful on live desks where different gigs call for different arrangements of monitoring and FX.

On top of the dynamics and EQ, there are also normally a number of FX engines that can be inserted on a single channel or utilised across the desk by inserting them on an aux bus. One of the key benefits of a digital mixer over an analogue one is 'full recall'. This function takes a snapshot of the position of every control on the desk and allows it to be recalled at any time. This is incredibly useful, allowing you to rapidly switch between projects or mixes in the studio, save settings for different venues, or save mixes for different bands playing on the same stage, at a festival for example. You could even synchronise your scene changes with a lighting desk for theatrical work.

Due to the flexibility of digital mixers, the majority use motorised or 'flying' faders and continuous rotary encoders, allowing the footprint of the mixer to be kept reasonably compact by arranging the channels and controls in layers. For example, a console may only have 24 physical faders but could have as many as 96 input channels arranged over four layers. It would also have further layers covering aux, group and output masters.

Live Digital Mixers

Live digital mixers differ from studio ones in a number of ways. They don't offer mix automation and tend to have a simplified layout for rapid access in a live situation. This tends to mimic a single comprehensive channel strip from an analogue console to enable engineers to quickly adapt to operating the unit if they're unfamiliar with it. Live mixers also have a greater number of analogue outputs than a studio mixer for use as monitor and front-of-house sends. These usually have a virtual 31-band graphic EQ built in and many have delay functionality for speaker alignment.

Expansion Cards

Expansion cards for live mixers cover a variety of long-distance, multi-channel formats, including MADI, Danté, CobraNet, and Aviom. These connections allow all the audio to pass down an inexpensive cable from a remote-controlled stagebox, making bulky, expensive multi-cores a thing of the past, with the added bonus that there's no signal degradation. These signals can easily be split to go to a monitor desk, recording system, or outside broadcast truck.

Old-School Analogue

If you're already covered in terms of audio interfacing and you're happy to rely on the effects processing of your DAW or effects rack, the functionality and increased cost of digital mixers might seem like overkill. Fortunately, analogue mixers remain a popular choice and there are plenty of manufacturers who have ranges aimed at live sound.

Questions to ask before you buy:

- How many inputs do you need? Be generous as it's very likely to grow!
- What's the balance between microphone and line inputs?
- Do you need phantom power on every track? And does the mixer genuinely provide full 48V on every channel?
- How good are the onboard microphone pre-amps?
- How many sub-groups do you think you'll need?
- Do you need onboard effects?
- Do you need an audio interface built-in? If so, does it matter if it's USB or FireWire?
- What options does the master output section provide?
- What are the monitoring capabilities?

Pros and Cons

Digital:

- Huge feature set
- High quality, digitally processed audio
- Recall and automation
- Some digital consoles feature DAW control
- Integrated digital DSP effects
- Pristine signal quality
- Higher prices
- Occasionally less immediate to set up and use

Analogue With Digital I/O

- Feels like an analogue mixer
- USB/FireWire interfacing removes the need for a separate audio interface
  - Lower cost than pure digital
  - If you own an audio interface, do you need digital output?
  - Ensure the mixer's audio driver is compatible with your computer and OS

True Analogue

- Intuitive 'set up and go'
- Onboard EQ and level adjustment
- Multiple outputs in master section for flexible studio/live routing
- Usually cheaper than digital
- Lack of audio interfacing
- Consoles tend not to feature integrated effects

Expert Witness

absolutemusic.co.uk

Andy Legg is Director of absolutemusic, one of the UK's leading music retailers, set up over nine years ago by a group of passionate audio professionals. As well as online sales, the company has a superstore in Bournemouth, UK, with a dedicated live sound department and a unique monitoring/auditioning studio designed by Andy Munro.
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Digital

If there's one development that has pushed forward the development of compact live consoles, it's digital audio. Technological leaps have enabled manufacturers to pack a plethora of features into what can sometimes be a very small package.

[1] DiGiCo's SD9 can simultaneously record 56 channels direct to multi-track software or a DAW. The control surface has 24 motorised faders, dedicated and multi-function control knobs, and electronic labelling. It features a 15-inch, super high resolution, touch sensitive TFT LCD backlit display, and provides a 12 x 8 output matrix, plus 48 Flexi channels, mono or stereo. The SD9 has integral I/O: eight mic/line inputs, eight line outputs, and four AES/EBU.

The SD11 is a 19-inch rack-mount or tabletop mixer. The expanded SD11i has more flexi-channels, more dynamic EQ for FX processing, plus DiGiTuBes and multi-channel inputs. It features 32 input channels with full processing, eight of which can be configured as full flexi-channels (32 on the SD11i). Sixteen mic pre-amps, eight line outputs, and two mono AES I/O are provided. It has 12 flexi-busses, which can be user configured as either mono or stereo.

The D1 Live provides simultaneous processing of 64 channels, and can be expanded up to 160 channels, in any combination of mono/stereo with full access to 224 inputs and 224 outputs. The worksurface consists of 25 faders; two input sections (each with its own touch screen), eight faders, and six user definable banks. The engine is integrated within the worksurface. The D1 has up to 160 channels with delay, high, and low pass filters, four fully parametric EQs and dynamics with side chain filtering, a full digital effects system, 32 IPCs, and 24 VCA style control groups.

The SD8-24 is a smaller-frame sized SD8, which provides a 16 x 12 output matrix – its 12 busses being additional to the console's 24 stereo, solo, and master busses. There are 60 mono or stereo channels; and integral I/O, including eight mic/line ins, eight line outs, and eight AES/EBU.

www.digico.biz

[2] The Midas PRO1 is the first stand-alone MIDAS digital console, featuring a lightweight aluminium frame. It offers 100 input and 102 output point-to-point routing anywhere within the network, 24 mic/line inputs with Midas mic pre-amps, 48 simultaneous input processing channels, 24 analogue outputs (including two stereo local monitor outputs), two AES3 outputs, and two AES3 inputs. Other features include 27 sample-synchronous, phase coherent mix busses, up to 12 multi-channel FX engines, up to 28 Klark Teknik DN370 31-band graphic EQs, and a full-colour 15-inch daylight-viewable display screen. There are eight VCA groups and six POPulation groups, with 96kHz 40-bit floating-point processing throughout.

The PRO2C is the compact form of the PRO2 console, and is essentially the same mixer with a smaller user interface, with all the same features as its larger sibling. 156 input and 166 output point-to-point routing is offered, plus 56 mic/line inputs with Midas mic pre-amps, 64 simultaneous input processing channels, 32 analogue outputs (with two stereo local monitor outputs), three AES3 outputs and two AES3 inputs, 27 sample-synchronous, phase-coherent mix busses, and six multi-channel FX engines. Like the PRO1, it also offers up to 28 Klark Teknik DN370 31-band graphic EQs and a full-colour 15-inch daylight-viewable display green, and features eight VCA groups and six POPulation groups. There are 192 MCA groups, and 96kHz 40-bit floating-point processing throughout. Also included is a 100-metre bi-directional CAT-5E AES50 digital snake (46 in and 16 out). Advanced navigation features are available, as well as a 'normal' mode.

www.midasconsoles.com

[3] Soundcraft's Si Compact features 32 recallable mic pre-amps plus four stereo returns, AES in and 64 input option slot with a capacity to combine up to 40 of those inputs to mix; each input features compressors, gates, parametric EQ, high pass filter, and delay. All aux/group, master, and matrix busses feature a compressor, parametric EQ, graphic EQ, and delay. The console also offers four stereo Lexicon FX processors, which, alongside 21 graphic EQs, give a total of 25 processes that

Analogue

If it has to be compact, it doesn't have to be digital, of course – there's a wide selection of analogue consoles that won't take up lots of space too, and still have all the features needed to run a live show.

[1] The Midas Venice is available in three frame sizes: 160, 240, and 320. It features four-band sweepable EQ, direct output, six mix sends, and four audio sub groups. The Venice 160 is rack mountable, and its connector panel is rotatable for rack mounted applications. External ISP1200 PSU is available on the 240 and 320 as an option.

www.midasconsoles.com

[2] The Soundcraft GB2 is available in frame sizes of 16, 24, and 32 mono inputs. Each input features the GB30 mic pre and GB30 EQ, along with six aux busses. There are four group busses configured as two stereo subgroups and an integral six by two matrix. The GB2 also features two stereo input channels, with separate mic and line inputs.

www.soundcraft.com

[3] Soundcraft's MFXi eight, 12 and 20 mono input mixers feature built-in 24-bit Lexicon processing. All MFXi mixers include two stereo input channels along with a two-track record output and a two-track replay input. Each model has two subgroups as well as a main stereo mix, supplemented by two aux busses. MPMi mixers replace the MFXi's internal FX send with a third aux send.

www.soundcraft.com

[4] Allen & Heath's GL2400 is a dual function, LR, mono sum, four group, six aux, 7x4 matrix console. Frame sizes range from 16 to 40 channels, including two dual stereo channels. It features a responsive four-band, two sweep EQ, and 100Hz channel high pass filters. It also offers dedicated channel, master and stereo monitor meters, and mutes, meters, and AFL on all fader masters.

www.allen-heath.com

[5] The ZED Series from Allen & Heath is a range of small format, USB-equipped stereo mixers. The range extends from ten-channel stereo designs to 36-channel, four-bus consoles. All can connect to a computer for recording, playback, or using external effects software. The ZED mixers are designed to be of use to anyone, from entry-level to professionals.

www.allen-heath.com

Analogue

[6] Cadac's Live1 is available in 16, 24, and 32 channel frame sizes. The 1642 has eight mic and four stereo channels, the 2442 has 16 mic and four stereo channels, and the 3242 has 24 mic and four stereo channels. The 1642 is rack mountable. All feature a new microphone preamp design, and a proprietary four-band EQ with two swept mid sections.
www.cadac-sound.com

[7] Studiomaster's C4TX range consists of an eight channel rack mounting model and eight, 12 and 16 channel desk top models, all with goose neck lamp socket, 60mm smooth faders, and effects on/off foot switch sockets. Features include twin DSP effects, three aux sends and stereo sub group; the stereo input channels include a mic input. Internally modular construction allows servicing.
www.studiomaster.com

[8] The MCX 12 and MCX 14 from Studiomaster feature four-band EQ with responsive control, and mic channels with two frequency sweep controls, plus six aux sends. The group and main mix section combines individual LED meters, balanced outputs, and mute facilities. Stage Mode swaps the group and mix faders with the aux send rotary controls, effectively producing a stage monitor mixer.
www.studiomaster.com

[9] The Studiomaster Horizon is available as the 2012, a 12 input rack or free standing powered mixer, and the 2018, an 18 input (16 channel) free standing unit powered mixer. It is made with aluminium panels and custom extrusions, and features a detachable shoulder strap and a retractable panel to raise the mixer to the best working angle.
www.studiomaster.com

Digital

4

5

6

7

can be used at the same time in addition to all the regular channel and bus processing. Along with the 32 mic inputs, there are two pairs of stereo analogue line in, AES in and out, 16 analogue line outputs, headphone monitor out, and a 64x64 channel expansion card slot.

The Si Performer offers digital audio mixing facilities in combination with a DMX 512 controller, which allows the mixing console to also run the lighting rig. The Si Performer 2 features 24 recallable mic pre-amps (32 on Si Performer 3) plus eight stereo returns, AES in one 64x64 expansion slot, and another 64x32 expansion slot offering enough expansion to use every one of the 64 mono inputs for a possible total of 80 inputs to mix. Each input channel has dedicated processing for high pass filter, input delay, gate, compressor, and parametric EQ.

Each console in the Si Expression range is identical in its feature set, with a choice of how many faders and local mic amps are required. The Si Expression 2 features 24 recallable mic pre-amps (32 on Si Expression 3 and 16 on Si Expression 1), plus four line inputs, four internal stereo FX returns, AES in, and a 64x64 expansion slot. It has a colour touch screen interface and, like the other consoles, features FaderGlow.
www.soundcraft.com

[4] The PreSonus StudioLive console's most compact configuration is the 16.0.2. The 16-channel mixer offers eight mono input channels and four stereo channels, and provides 12 XMAX Class A solid-state mic pre-amps. In total it has 13 Class A mic pre-amps, including the Talkback input. It uses the same workflow and mixing surface design as the bigger StudioLive boards. It integrates a 16x16 FireWire interface and comes with Capture and Studio One Artist recording and production software, and VSL bidirectional control software. VSL, in turn, incorporates Smaart Measurement Technology, which makes it easy to fine tune and analyse the main mix.
www.presonus.com

[5] Allen & Heath's GLD-80 mixer provides 48 input processing channels, eight stereo FX returns, 30 configurable busses, 20 mix processing channels, and DSP power. A fully customisable drag and drop layout allows quick assignment of inputs and mixes to fader strips. There are 20 faders strips in four layers, each with motorised fader, a channel LCD display, plus a rotary control for direct access to gain, pan, and aux/FX sends. The mixer's local I/O comprises four XLR mic/line inputs, four XLR line outs, four RCA inputs, two RCA outputs, and digital outputs in SPDIF and AES3 formats.
www.allen-heath.com

[6] The Allen & Heath iLive surface is simply a controller for the MixRack. It also has an audio rack built in to provide local inputs and outputs at the mix position. It features a touch screen, name and colour virtual 'write-on' strip, banks of motorised faders with independent layers, built-in headphones, local monitor, and talkback. The modular iLive-80 allows a variety of audio I/O modules, network formats and redundant power supply options, and has 20 faders and up to 32 audio sockets. The iLive-R72 provides an ultra-compact rack mountable solution with fixed format I/O, and has 12 faders.
www.allen-heath.com

[7] Yamaha's CL Series consoles feature separate console and I/O rack components that communicate via the Dante network audio protocol. Other features include Portico 5033/5043 EQ and compressor devices, plus the Yamaha Centralogic concept, which is designed to offer operating efficiency. The CL3 has 65 mono and eight stereo input channels, and a 16-fader left section, eight-fader Centralogic section, and two-fader master section, plus optional meter bridge. The CL1 can be used alone or cascaded to another CL console for input expansion, and has dual eight fader sections plus 48 mono and eight stereo inputs.
www.yamahaproaudio.com

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- 2 1 Transformer-balanced XLR line inputs
- 2 1 Transformer-balanced XLR mic inputs
- 2 1 Transformer-balanced XLR line outputs
- ■ One ¼" stereo Link connection

In 2005, we collaborated with famed tube circuit designer Anthony DeMaria to create the finest tube preamp that money can buy. Not the finest for the price. The finest — period.

The result was the ADL 600, a distinctive Class A, discrete design that has won a reputation as one of the world's best-sounding preamplifiers among top recording engineers and producers.

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We use only the finest components right down to the last polypropylene film capacitor, including switched attenuators, analog VU and LED meters, and custom-designed, proprietary transformers. There are no op-amps or ICs in the signal path.

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Digital

[8] The Yamaha LS9 series consists of the 32-mic/line input 64-channel LS9-32 and the 16-mic/line input 32-channel LS9-16. Both have been designed to be compact and light enough for one person to move and set up easily, but with features that are included in larger Yamaha digital consoles. In addition to an extensive range of gating, compression, and equalisation capabilities, there is also a built-in USB memory recorder/player for recording or BGM playback. Each offers 16 mix busses, eight matrix busses, plus stereo and mono busses with LCR mode. Functions can be controlled remotely using the StageMix app via an iPad.
www.yamahaproaudio.com

[9] Roland's M-200i V-Mixer combines an iPad with a physical controller, with the iPad functioning as a large touch screen display. It can be used for intuitive control of effects and other graphical manipulation, while physically controlling the volume with the motorised faders. The 'touch and turn' surface allows the user to touch a parameter on the iPad and control it with a physical knob. The M-200i offers a 32 channel input mix capacity. Any of the 24 analogue inputs, the 40x40 channels on the REAC port, the effect outputs, and USB memory recorder can be assigned to the 32 channels.
www.roland.com

[10] The M-300 V-Mixer from Roland has a compact, highly portable chassis, while offering 32 mixing channels, L/C/R outputs, eight aux busses, and four matrices. Four-band parametric EQ and dynamics are available on all channels. There are 11 different built-in multi-effects/parametric EQ and delay on all outputs. Other features include 24-bit AD/DA, and the ability to record to and playback from USB Flash memory. The M-300 is designed to seamlessly integrate with other REAC devices, and also integrates with the Digital Snake. It can be controlled remotely in real-time from a Windows PC connected via the USB port.
www.roland.com

[11] The Polaris Touch Screen Mixer from Stagetec is modular mixer, and so can be configured in a compact arrangement. The modules available are the basic module with touch screen and 16 dual concentric rotaries, fader module with 12 motorised faders and automation control, and the fader expansion module with a further 16 faders. It features intuitive touch operation with physical encoders and motorised faders. The UI is clutter-free, with fast access to all parameters and at-a-glance visual monitoring of relevant parameters.
www.stagetec.com

[12] The CADAC CDC Four is based on a proprietary DSP mix platform. The console features 16 fully motorised channel faders, high resolution TFT colour display, and fully recallable scene memory. Specially developed ultra-low distortion EQ filters are used, as are true analogue sounding compressors, 96kHz 24-bit Delta Sigma AD/DA converters, and fourth generation 32/40-bit floating point SHARC processors. The Central Assignment Module controls EQ, group assignment, VCA control, effects, aux sends, and dynamics. Each of these functions has a discrete control. The master section has exclusive controls for output EQ and dynamics.
www.cadac-sound.com

Analogue

[10] Studiomaster's MDX12 is a 12-channel mixer featuring four-band EQ and mic channels, including two frequency sweep controls. There are six aux sends, all selectable pre or post fade. The stereo channels include a mic input that can be used simultaneously with the stereo inputs. As with the MCX series, Stage Mode swaps the group and mix faders with the aux send rotary controls.
www.studiomaster.com

[11] There are three models in Yamaha's MG Series, all with built-in SPX digital effects and built-in channel compressors. Features include three-band channel EQ and high-pass filters, aux/effect sends, two, four, or six busses (stereo and group), smooth 60mm faders, illuminated Channel On switches, and high-performance microphone pre-amps with switchable phantom power. There is an optional mic stand mount for the MG82CX and MG102C.
www.yamahaproaudio.com

[12] There are over 30 models in Behringer's Xenyx range of mixers; all feature premium grade Xenyx mic pre-amps. They are updated versions of the Eurorack range, with improvements including the aforementioned mic pre-amps. It also features "neo-classic 'British' EQ", based on classic 60s and 70s mega-console desks. Select models feature dedicated wireless-ready integration for Behringer's ULM Series USB microphones.
www.behringer.com

[13] Mackie's Onyx-i Series FireWire production mixers feature an ultra-high quality 24-bit/96kHz FireWire recording interface, 'boutique-quality' Onyx mic pre-amps, classic 'British-style' Perkins EQ and pre/post assignable aux sends, all of which can be flexibly routed via integrated FireWire. It also features optional integration with Waves MultiRack plug-in platform.
www.mackie.com

[14] The Mackie VLZ3 series offers two premium FX mixers with USB, featuring a high-headroom, low-noise design, and modern summing bus architecture. They offer XDR2 mic pre-amps, which have a 130dB dynamic range. Dual 32-bit RMFX+ 'Gig Ready' effects processors are included, plus dedicated inline compression on key channels and four subgroups.
www.mackie.com

Digital

[13] The Mackie DL1608 is a 16-channel digital live sound mixer with iPad control, which offers 16 Onyx mic pre-amps, high-end Cirrus Logic converters, six aux sends for monitor mixes, and master L/R output for mains. Processing features include a choice of touch-sensitive plug-ins, four-band EQ, gate, and compression on inputs, 31-band GEQ and comp/limiter of outputs, and global reverb and delay. It offers the ability to tune the room from anywhere, plus personal monitor mixing with access control ability.
www.mackie.com

[14] Avid's Venue SC48 is a fully integrated live sound system that combines all I/O, digital signal processing, and tactile control into a single console. It features the characteristics of the larger Venue systems, including plug-in support, seamless integration with Pro Tools systems, and complete show file portability; but also has several new workflows that streamline the mixing process. Features include 48 analogue mic/line XLR inputs and 16 analogue line outputs, 16 aux sends, eight groups, plus eight mono matrices.
www.avid.com

[15] Behringer's X32 is a 40-input channel, 25-bus digital mixing console. It features 32 Midas-designed, fully programmable mic pre-amps, and 25 fully automated motorised 100mm faders. There are 16 XLR outputs, plus six additional line in/outputs. The onboard virtual FX rack provides access to eight true-stereo, multi-effects processors, and it can run four true-stereo reverbs concurrently with eight channels of 31-band graphic EQ. It also offers 40-bit floating-point DSP, and is 48-channel digital snake ready via AES50 ports.
www.behringer.com

[16] The iX16 from Behringer is an ultra-compact 16-input, eight-bus digital mixer for iPad, with 16 programmable Midas preamps and USB audio interface. The processing is based on the X32, but is pitched at being accessible to a less experienced user, focusing on a simple, streamlined workflow that is easy to grasp. Its eight buses each feature inserts, six-band parametric EQs and full dynamics processing, while its virtual FX rack features four true-stereo FX slots. It also has 40-bit floating-point DSP.
www.behringer.com

[17] The Phonic Summit is a 16-input, eight-bus console with colour touch screen, featuring eight aux and eight subgroup mixes, 17 automated faders encompassing a three-layer design, and insert points on all input channels. Also available is the IS16, a 16-input, eight-bus console with colour touch screen and VGA output. It offers 31-band GEQ, available on EFX 1 and main out, 15-band GEQ on EFX 2. Four-band parametric EQs can be found on all input channels, multi outputs, and main outputs.
www.phonic.com

Analogue

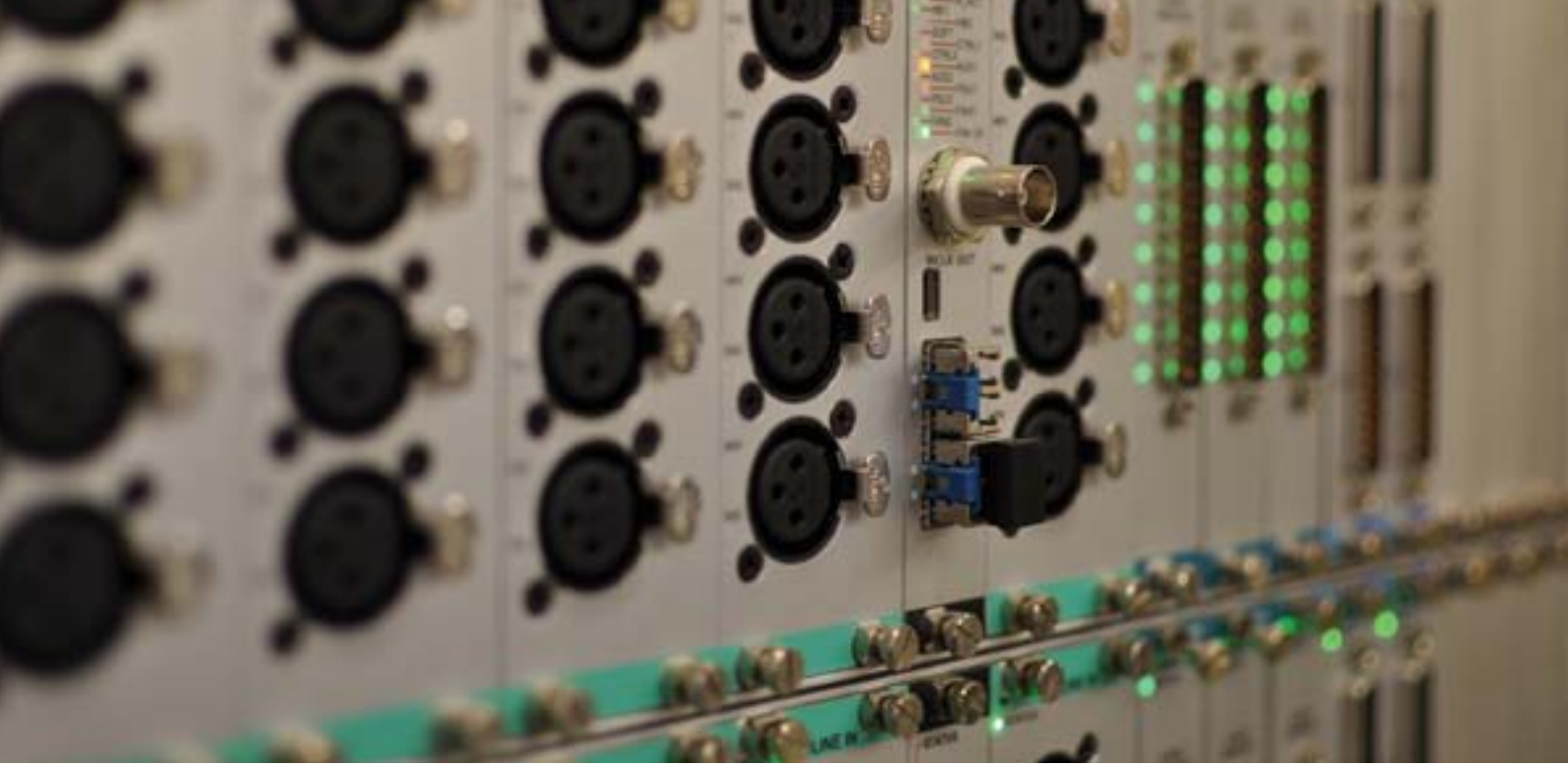
[15] Peavey's PV Series of compact, easy-to-use mixers feature discrete, ultra-low noise microphone pre-amps, plus other features such as effects and monitor sends on each channel, zero-latency record monitoring capability, and 48 volt phantom power. Each model has a heavy-gauge steel chassis. Several of the models allow direct USB connection to a computer.
www.peavey.com

[16] The Samson L1200 is a 12-channel/four-bus mixing console, which provides eight mono mic/line channels with studio-quality microphone pre-amps, and three-band swept mid EQ. In addition, the console features two stereo line channels with mic pre-amps and four-band EQ, along with three aux sends plus an EFX send.
www.samsontech.com

[17] Dynacord's CMS-3 is available in three models, which differ in the number of mic/line input channels they offer, but are otherwise identically equipped. They integrate a high-quality mixer, digital 24/48-bit effects processors, and a professional digital interface to PC and Mac. The CMS 1000 can be rack mounted.
www.dynacord.com

[18] The Dynacord PowerMate 3 is a range of four powered mixers, ranging from 4+4 inputs to 18+4 inputs. All feature two digital effect channels, four-channel USB audio interface, and two 1000 watts Class-D amplifiers. The PowerMate 600-3 has nine-band stereo EQ, while all other models have 11-band stereo EQ.
www.dynacord.com

[19] The AM Series mixers from Phonic have between five and 24 mono mic/line and stereo inputs. Features include ultra low noise pre-amps, and low-cut filters on mono channels to eliminate unwanted sounds. The mono channels have multi-band EQ. Dual multi-segment LED level meters and high volume headphone outputs are offered.
www.phonic.com



Creative Input

Paul Watson talks to three of the leading broadcast manufacturers about their approaches and philosophies towards the design of the input stages of their consoles, and asks the question: "Is analogue design still improving, or have we now exhausted what's possible?"

Calrec's Senior Design and Development Engineer, Graham Milnes, says the main thing is to make sure all customer requirements are met, though interestingly, some of those requirements might not immediately be known to the customer.

"Ultimately, the customer just wants everything to work, of course," he says, "but in the real world, we supply a lot of kit for outside broadcast and one of the most important things is protection on the input; when there are nearby electrical storms going on and you have very long cable runs, you have got to protect those inputs so they won't pack up. Barring a direct hit, we're able to do that."

Milnes says that having to comply with EMC directives has most certainly affected the way that manufacturers approach designing their inputs.

"Years ago, before EMC compliance came into play, we had quite excessive RF filtering to take out the Long Wave, Short Wave, and Medium Wave transmissions, be it a radio, a taxi, whatever; that was a big nuisance in the 70s, 80s, and 90s, and it's so important to get that stuff out of there, as we do have to comply with all of these [EMC] directives," he explains. "If you think about the traditional XLR input, people used to talk about the classic pin one problem whereby pin one of the XLR wasn't bonded correctly to the chassis and would often go down onto the circuit board; these days, mainly to do with EMC compliance, pin one is hard-connected to the chassis, which negates the need for ground lifting and everything is much safer. Some people may disagree, but that's our philosophy, certainly."

"When it comes to digital processing, it's all 24-bit resolution audio, but without giving too much away, it's important we have more bit resolution than 24-bit audio so you can have yourself more head and tail room…"

Graham Milnes, Calrec Design & Development

Calrec hasn't used transformers on mic inputs since the 90s; instead, everything is electronically balanced. Milnes says this is due to size, weight, and cost; and technically, better performance is achievable electronically. Headroom is also a massive factor, he says, even in user control.

"When it comes to digital processing, it's all 24-bit resolution audio, but without giving too much away, it's important we have more bit resolution than 24-bit audio so you can have yourself more head and tail room," he reveals. "It might sound strange, but if you just think of EQ these days, which is typically four-band, each of those four bands will often be capable of adding 20dB of gain, and you can very quickly get some very high signals; if you don't have some extra bits to handle that then you're in trouble. We have a vast amount of headroom in our system, some in the user control too: we have the front end screen where the end user can see how much headroom they've got up to the fader, so if things get loud and out of control, the operator can pull the fader down and everything still sounds clean. The end user can select the input headroom anywhere between 18 and 36dB, which is quite a lot."

The Calrec inputs are unique in that they accommodate mic and line inputs, which Milnes says is particularly convenient for the end user.

"Because one input can be used for mic or line, we have a gain range that goes up to 78dB maximum and at the other end of the scale it will attenuate at up to 18dB," he explains. "For many years we've tended to have the universal input, though it complicates the design for the pre-amp somewhat as it needs to handle a very high signal."

Although all I/O is analogue, everything else is digital, and Calrec stopped making analogue consoles more than three years ago. Milnes insists, however, that in some ways, analogue is still going very strong.

"When it comes to the operational amplifier, which is the heart of the circuitry really, the good old 5532 is still a hard act to follow. It has been bettered, but these newer offerings will cost significantly more, and whether they make that much of a difference or not is open to some debate," he says. "Certain amps have improved and if you compare specs, there will be better noise performance, better THD, slightly lower power consumption, and higher drive current. The maximum level you will find in broadcast is supposedly +24dBu, but there are many devices where internally the power rails will generate above and beyond that; all our inputs will handle at least +27dBU, which is very high, and when the end user turns the gain down on the mic pre-amp, the signal will stay absolutely clean."

The Dallis Dynasty

Lawo's latest input board is the eight-channel Dallis mic/line in, which is balanced, floating, and features galvanic separation.

"We don't use audio transformers when doing galvanic separation; instead, it is realised in the digital domain," says Martin Werwein, of Lawo's R&D department. "This structure eliminates the drawbacks of such transformers, and as a result, we can offer excellent distortion performance, common mode rejection even at high frequencies, low crosstalk, and a much higher density."

Lawo also uses discrete Class-A pre-amps, which, it claims, provides ultra-low equivalent input noise even at moderate gains as well as a flat frequency response.

"Our mic-pres are extremely high quality because we built them in a very modern discrete design that provides an excellent overall performance, as well as the very best distortion performance even at high gains," Werwein adds. "Then in terms of amplification, our variable gain amplifier is working with a full digital gain stage and two noise scaling amplifiers – one analogue, one digital. The analogue noise scaling amplifier together with its digital counterpart is used to run the analogue gain stage, which guarantees the best noise performance, and using this structure allows end users to change the gain settings in the digital domain without any audible clicks."

Although the gain reduction of Lawo's PAD is 20dB, the maximum input level is limited to +24dBu, though the maximum input level without the PAD is +8dBu. This structure, Werwein claims, makes it possible to run the PAD stage with a better noise performance.

Lawo also believes that it is ahead of the game in terms of filtering design for A/D conversion, insisting that its modified FIR filter architecture minimises latency whilst maintaining an excellent linear phase response.

"With a single sampling rate, a little aliasing above 20kHz is unavoidable for maintaining acceptable latency, whereas with a double sampling rate, an aliasing-free operation is possible without an extended group delay," Werwein explains. "However, we have implemented a second FIR filter implementation, optimised for double-speed mode, and this is not realised in common designs; it allows for a complete aliasing-free operation and maintains ultra-low latency.

"With the latest generation of high-quality audio interfaces, Lawo has reached an audio quality that can hardly be improved. The quality regarding distortion and noise is so high that one needn't pay attention to it in most cases; and although this may also be true of products from other manufacturers, our equipment is absolutely failsafe under even the most problematic environmental conditions, which certainly gives us an edge over the competition."

Studer-Maker

Studer's Product Manager, Andrew Hills, says the most important area of a mixing console design is the initial analogue circuitry followed by the A/D converter, as once the signal is captured into the digital domain poorly, it cannot be repaired.

"Analogue consoles had mic inputs and line inputs, the reason being there were only two types of device you wanted to connect to an analogue console: a microphone or an active device like a tape machine or playback device," he says. "As the move has gone from transmitting audio between regions from analogue to digital, the number and variety of digital has grown exponentially as well; things started with a single AES interface, then there was an SPDIF digital interface, then various multi-channel audio ones like MADI and ADAT. What Studer has chosen to do to is provide as many interfaces on standard cards so customers can connect whatever equipment they like directly to the console without any additional blue boxes or conversion interfaces."

The Studer cards include a 64-in 64-out MADI card, 16-in 16-out ADAT and AES cards, an eigh- in eight-out analogue card, and mic cards with just four channels. What is particularly significant is the amount of money Studer is investing to make a high-quality mic interface.

"We are basically putting in eight times the amount of money it costs to make a multi-channel digital interface to make a high-quality mic interface, because we regard that initial conversion as so very important," Hill insists. "It is the only way of getting the initial capture of the audio into the digital domain in the absolute best possible way."

Another element of Studer's input stage design involves moving the mic amplifier away from the mixing console, Hill says: "Whereas in a traditional analogue console the mic channels were in the channel strips in the console, nowadays we make stage boxes where the mic amps are placed down by the stage or by the mic so that the cable from the mic to the amplifier and its converter is very short; at that point, the signal is converted to digital and transmitted up to the mixing console as a multi-channel digital format which then suffers no further degradation in signal."

Across the board, it is clear that manufacturers see the input stage as the most important of all when designing broadcast consoles. As with many areas of the audio industry, digital is now clearly the norm, and has led to a number of significant enhancements, though analogue remains king when it comes to I/O. Headroom is also crucial, particularly in live broadcast applications, where there is literally no room for error.

www.calrec.com
www.lawo.de
www.studer.ch

The Wireless Debate

The majority of audio engineers are probably less familiar with the components, design, and theory of wireless systems than any of their other tools. Paul Watson talks to five leading manufacturers about digital versus analogue in terms of quality and versatility, and explores the trade-offs that take place when creating less expensive systems...

In the eyes of Audio-Technica's Product Manager for Europe, Alex Lepges, there is no fundamental benefit of digital over analogue, full stop, despite the fact that the company just launched its second digital platform at NAMM.

"Simple physics shows that analogue is always going to be better at getting the signal through," he insists. "We may have changed the wireless spectrum, but the frequencies are the same; and a digital carrier is easier to destroy than an analogue one. Bear in mind also that a digital wireless mic takes up seven times as much space as an analogue one."

Lepges also believes that because digital brings down its "so-called bit rate" to less than 200kb per second, it only adds to the problem.

"If you take a standard sampling frequency of 48kHz and a dynamic range of 24-bit, that gives you a bit rate of 1.152 megabits per second – as a rule of thumb, bit rate is equal to the occupied bandwidth, so that's basically 1.152 kHz – and that's just way too high," he continues. "What all the manufacturers have to do is significantly reduce the bit rate to squeeze it into that 200kHz window, so they're cutting down the quality substantially to make it workable and are still using the same amount of spectrum as an analogue system."

Although there is no analogue compander present in digital systems, transient sounds from many digital wireless solutions "still sound weird and over excited", Lepges insists.

"That's what you get if you have to compress in this way – digital data compression is essentially 'throwing away information', so you're exchanging one artefact for another, and that's a problem," he says. "Even some of the very expensive digital systems out there only have a range of 10-15 metres in standard mode, and that's a huge disadvantage over analogue; then when you switch them to long-range mode, there is often a 3.5-1 ratio of data compression, so the dynamic range drops significantly. Long-range digital just doesn't work; you slaughter the audio quality – that's the trade-off."

Audio-Technica's latest solution, Lepges reveals, is using dual companders.

"We use two companders per channel, so we make an active frequency splitting and compress and expand the different frequency ranges of the mics individually," he adds. "That way, you can really increase the audio quality and there is no latency... besides the speed of light, of course!"

So what about the 2.4 GHz systems, with no spectrum limitation?

"Well that's a big jump. Line 6 uses these systems and they're very cool as they can transmit uncompressed audio; and in terms of latency, it's one of the fastest on the market," he continues. "The problem is, if you occupy the 2MHz frequency, your window is soon occupied with a lot of carrier, so once you hit 10 or 12 systems, that's it – you're done. Also, these systems won't work properly outdoors, as you need the reflections of a room. Without four walls around you, the signal drops after 10 metres, so that's a major disadvantage."

A Multi-Faceted Process

Sennheiser believes that the decision process regarding a wireless system depends on several factors: robustness; and the reliability of the audio transmission.

"The matter of excellent sound quality actually comes second, as it isn't much use having great audio that doesn't reach the receiver," explains Sennheiser's Head of Portfolio Management, Professional Systems, Claus Menke. "Many systems fail to meet those two aspects equally well, and some of the low-budget digital systems especially may meet the audio quality expectations, but

The AKG DMS 700V2.

Sennheiser's Digital 9000 System, and Shure Axient.

often fail to provide reliable transmission in critical situations."

Menke claims that the company will never sacrifice one aspect in favour of the other, therefore both can be expected no matter the price point. Is it not inevitable, though, that both audio quality and reliability will increase as the price does?

"In advanced set-ups with high channel counts, the RF environment becomes denser and the distances are longer, so in touring situations this does add to the price," he admits. "High-quality systems feature steep filtering and linearity of the circuits to ensure immunity against interference, which again dictates higher price points.

"We are, however, working on a solution that will make frequency coordination in the analogue world a lot easier; and with our flagship Digital 9000 Series, frequency calculation is now a thing of the past as the transmission frequencies can be placed in an equidistant grid."

Make It Easy

According to AKG's Wolfgang Fritz, ease of use is paramount in any wireless system, especially in the low- and mid-range markets.

"This is particularly important as these systems are often used by unskilled people not used to working with wireless," says Fritz, who heads up wireless products at AKG. "For example, a teacher working with a wireless system won't necessarily know anything about frequencies; he'll just want to turn the system on and have it work for him right away."

Fritz says that although all AKG wireless systems are solid, reliable products with good transmission, for the high-end, an expansive linear amplifier is absolutely key.

"At the high-end you want an amp with a high inception point that can handle very high and very low input levels, with a perfect linear signal," he explains. "This is the first step from the radio wave into the electronic part of the system, therefore it has to be very linear to support perfect signal quality without any intermodulation. At the low end, you will get more intermodulation – that's one of the trade-offs with regard to the cheaper systems."

Reduced channel counts and bandwidth are other trade-offs in low-end systems, Fritz suggests.

"You'll often see PVC transmitters rather than metal at the low end of the market, though funnily enough, plastic is sometimes stronger than metal, it's just that the customer always thinks metal is better," he adds. "Also in the low-end, we'll use more narrow, affordable filters, or just use one filter, which saves money, though there will be a bit more interference in the signal as a result."

So how is digital doing against analogue, then?

"Well, in the WiFi-polluted, consumer level, 2.4GHz range, then of course reliability is not going to be up there with the UHF range, but most digital systems today are in the 2.4GHz range, therefore they are not 100 percent secure," he says. "Also, the working distance is lower because of the frequency wavelength; this is the reason a lot of mobile providers want this UHF frequency range for their new transmission, as it is always wider."

Beyerdynamic's Product and Marketing Manager, Tobias Sacher, believes that in fact there are many audio engineers who have a well-founded knowledge in RF technology, though he concedes that on the whole, audio technology in general is far more accessible than "the complex world of RF".

"It's important for RF and AF to be very reliable, and certainly future-proof; in a time of digital dividends, purchasing a wireless system is certainly a risk," Sacher insists. "Systems should always contain rock-solid components, as a touring environment can be very hard on this kind of equipment, and systems also should be open for hardware and software updates."

Sacher says entry level systems can only be compromised in quality and technical capability.

"Quite simply, their technical capabilities are limited – there will be less channels available, and the quality of components can be really critical as they're not going to be made for hard touring," he continues. "Most of these less expensive systems are not adaptable for different applications and don't have interchangeable capsules."

Credit Where It's Due

Tuomo Tolonen, Applications and Product Planning Manager at Shure UK, says the successful deployment of large wireless systems doesn't get enough credit when it comes to major live events.

"People turn a wireless system on and it works – great – but if something goes wrong, it's a case of 'where do I start?'" he states. "Wireless is in the forefront now in comparison to the last few years with the whole digital switchover thing, and we are going to have less spectrum as an industry to operate in as time goes by; but at the same time, every show is getting bigger every year, so it's sort of a contradictory situation, isn't it?"

Tolonen says Shure has put a lot of research into wireless over the last 10 years, though he believes that many people within the industry are still "throwing terms around without really knowing what's going on". Add to that the 790-862MHz band recently being sold off for more than £2 billion to the major mobile phone companies, and wireless is suddenly mainstream news. Where does that leave us as an industry, then?

"Well, digital radio mics are now far more mainstream, that's true. Both Shure and Sennheiser have released good digital products in the last 12 months, but I am still cautious; digital certainly isn't the magic word, put it that way," he says. "Whether it's analogue or digital, you still need clean and continuous spectrum. BEIRG (British Entertainment Industry Radio Group) is now lobbying with OFCOM for spectrum on a European level, which requires continuous blocks of clean interference-free spectrum operating at the production levels we are used to. The UK is a well respected nation when it comes to that content, and we need access to clean spectrum – that's the bottom line."

Tolonen says when deploying any wireless system, it is all about how 'critical' the job at hand is.

"What I mean is, if you're a wedding DJ and the mic drops out, it's not going to be the end of the world, as everyone is drunk and it's not an issue, but if your RF drops out during the Oscars or the Olympic opening ceremony, then someone will lose a job," he explains. "It's not a question of analogue or digital, it's reliability and quality of product. At the low end, plastic transmitters are commonplace, then you can add better LCD and features as you go up – it's all about how good the filtering is on the receiver, how linear the RF amplifier is on the transmitter, and the list goes on. Essentially, whether you're talking about a radio mic, a toothbrush, or a car, the design and use of components and how it works will always improve the more expensive it is."

Tolonen leaves us with something to ponder:

"Think about this... The mobile industry is buying the spectrum for better quality, higher bandwidth audio and video for their networks – well guess what, it's the first single piece of equipment in a signal chain for a wireless microphone, so the irony is that they want the spectrum, but they are not going to have content if we don't have a spectrum to operate it on!"

www.audio-technica.com
www.akg.com
www.beyerdynamic.com
www.sennheiser.co.uk
www.shure.com

"With a flood-wired building, an audio over Ethernet system allows any room to become a potential recording location – just plug in and go."

Iain Betson

Focusrite **RedNet Series**

Ethernet Audio Interface System

In the late 1990s, I was involved in the winning application for a commercial radio licence. In return for shares in the venture, I built the studios. Part way through the installation, a shareholder visited the site and made a remark that went down in the folklore of the station. Questioning why the studio installation was taking so much time, he remarked: "After all, it's only a few wires". Now the three studios I built were not large, nor complicated, but I estimated that each one had around 2,500 terminations in it – more than "a few wires", and a lot of expensive copper too.

Fast forward to 2013 and that 'few wires' remark popped into my head as I spoke to Focusrite's Will Hoult about the company's RedNet product.

In response to my question about the benefits of RedNet, he mentioned a major studio facility in London which estimated it had over 17km of cable in the complex, much of it very expensive multi-core. If RedNet had been available at the time, interconnecting over comparatively cheap Category 5 or 6 data cable and offering improved functionality, it would have represented a significant cost-saving.

Red All About It

In essence, the Focusrite RedNet system is a digital audio inter-connection system. It uses the Dante digital audio transport standard developed by Australian company Audinate. Dante has been licensed to several high-profile manufacturers such as Yamaha, Allen & Heath, Electro-Voice and, of course, Focusrite. This means there is now a mature common communications platform between them all.

Dante benefits are many: low latency bi-directional, multi-channel audio transmission with true plug and play functionality, the utilisation of cheap proprietary IT hardware, and direct connection to PC and Mac. It can even co-habit with the data on an existing network, although for increased resilience this is not recommended. Focusrite states that RedNet is the first product on the market to offer IP network audio interfaces to the recording studio, but by that statement I think they do themselves a disservice because, as a broadcast engineer, I can see applications in TV and radio, live sound, outside broadcasts, and theatre. It really is that flexible.

"It is indeed more than 'just a few wires'. It's an audio transport system that goes way beyond simple inter-connectivity. It is scalable, easy to set up, offers that most crucial of things in live monitoring – low latency – incorporates quality front-end analogue architecture, the future ability to 'cut out the middle man', and interface directly with a DAW."

Iain Betson.

Red Faced

The RedNet system is currently a range of five boxes (although this will be added to imminently) all made to the company's usual high standard. Each product has roughly the same footprint and features a solid billet of red machined aluminium as its front panel. Simply numbered RedNet 1 onwards, the first five are 2U high, whilst the RedNet 6 is 1U. All are 19-inches wide. There is also a PCIe card, to fit inside a Mac or PC to make them Dante/RedNet capable.

RedNet 1 is sort of the introductory product to the range, and allows eight channels of bi-directional audio via 24-bit D-A/A-Ds. The I/Os are presented as two D25 connectors on the rear panel, the pins out of which are compatible with standard eight balanced audio channel breakout snakes. These channels offer 119dB of headroom and sample rates of up to 192kHz.

Will Hoult was quick to point out that the system is scalable, unlike the one-size-fits-all approach of MADI. You can start small with an eight-channel simple analogue line level point-to-point system and build from there.

This is borne out by the RedNet 2 and 3 products, the former being a 16-channel version of the '1', whilst the latter doubles the channel count again, but stays entirely in the digital domain in offering up to 32 channels of AES, S/PDIF, or ADAT presented audio.

The RedNet 4 is where things start to get really interesting, it being a package of eight mic pre-amps or line level inputs plus two selectable, front panel accessed DI inputs. All the microphone amplifiers offer phantom power, high pass filtering, as well as the ability to have their gain remotely controlled. The dynamic range figure stays the same, but the amplifiers give 63dB of gain (more than enough for any type of microphone) and distortion and noise figures of less than 0.001%.

I saw the RedNet 1,2, and 4 in action in the superbly-equipped studio facilities of the University of Derby, the first recipient of a RedNet system, and will touch on the innovative ways in which the system can be used shortly.

The soon-to-be-released RedNet 5 will interface directly to Pro Tools HD with 32 channels of bi-directional audio. Own a top specc'd HDX system and connecting six RedNet 5s to it will raise the channel count to the

THE REVIEWER
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maximum 192; depending upon the sample rate, it offers 96kHz for those 192 channels or 192kHz SR by dropping the channel count to 96. RedNet is also compatible with Pro Tools HD TDM.

If your facility runs MADI, this is where the RedNet 6 comes in. Its sole purpose is to act as an interface to this 'legacy' technology. Again, sample rate depending, up to 64 channels are supported in either direction via coaxial or optical interconnects. There are Word Clock I/O connections too.

The PCIe card is compatible with any Dante-enabled device and offers 128 bi-directional channels, supporting 24-bit/192kHz resolution. RedNet PCIe is a lower-latency, higher-channel-count alternative to using the onboard Ethernet port of a computer and Dante Virtual Soundcard.

Redy Steady Go

So much for the preamble; how does RedNet perform in the real world?

The University of Derby's Department of Music & Media Technologies boasts an impressive multi-room studio facility, and it was there that I went to see a RedNet system in action. John Crossley is the Subject Leader in Popular Music Production, and he very kindly took some time out to show me how the college uses RedNet in teaching delivery and to tell me about the plans they have for it in the future.

Derby's recording facilities consist of a main control room equipped with a vintage Neve 48-channel desk, Pro Tools HD, and a selection of FX and processors. A second smaller control room is based around a Pro Tools HDX system allied to a C24 control surface. Each control room can work into either of two live rooms via discrete audio cabling circuits. But these rooms, like the rest of the college, are flood wired with data cabling too, and that is where the RedNet comes into its own.

The RedNet roll-call for the campus consists of two RedNet 1s, a RedNet 2, and four of the RedNet 4s. The college physically configures these into two racks: one in the control room containing a single 1 and 2 model and a portable roll-along, with the three model 4s and the other model 1.

A further benefit of the Dante system is that it works using cheaper network hardware; the two racks used by the University also have a 24-port Netgear switch information box in them. These units act as 'concentrators' to reduce the cross-area cabling to a single run.

Set up and configuration of the system is carried out in the control room via RedNet Control, a GUI displayed on an overhead screen. RedNet Control is quite straightforward in deciding which RedNet unit in one area 'talks' to its brother in another, but in terms of configuring the individual channels it is limited. To address this, also supplied is an off-the-shelf piece of software from Audinate, called Dante Controller, that – although in no way as graphically pleasing as the Focusrite software – does the job. Perhaps product development will see these combined into a single product?

Currently, the University uses the system in a 'semi-conventional' way in that the mic amps of the Red 4s are in the studio, but are set up and remotely controlled from the control room. The Red 1 in the same rack provides fold-back and monitoring outputs to a separate headphone amp. In the control room the analogue O/Ps of the RedNet 2 provide line level I/Ps into the Neve desk and the Red 1 provides the interface for the fold-back signals. With a constant latency always less than 3ms, John stated that they had never had an issue with fold-back delays.

During our conversation, John raised a very interesting application for the RedNet, namely as a signal splitter. The live room could be set up with the Red 4 mic/line/DI amps and the output could be split to two locations, thus offering two groups of students the ability to simultaneously record and mix two different versions of the same performer. This ability to signal split so easily, without the addition of racks of splitters and the mass of cables associated with such a process, has obvious applications in the live sound and broadcast markets.

John said he was really looking forward to the release of the Red 5, as this would truly offer end-to-end digital connectivity between the mic amp and a Pro Tools system. Apart from a workflow perspective, I can also see that such a product would have the benefit of lowering equipment costs for commercial studios too.

Redy For Anything

With a flood-wired building, an audio over Ethernet system allows any room to become a potential recording location – just plug in and go. The Dante system is so network agile that even if you are forced to run it over a network with other traffic, it will still locate and connect the two ends of the link automatically. John tells me he plans to try to use a recording location in another building on the Derby campus over 2.5 miles away and connect it to their control room via the University's WAN.

As someone who has rigged a few outside broadcasts, I would like to see a Neutrik-style Ethercon connector as the link connector. Whilst a standard RJ45 is fine for a clean dry studio, standing up to the rigours of an OB or a live sound event is a concern. This is a minor quibble – perhaps a Mk2 version may address this?

Red Top

The application of sending audio over Ethernet is not new and Focusrite is in no way first to the market, but I am very impressed with the way it offers the RedNet system as a product. By licensing the Dante system as its transport, it ensures that RedNet will not exist on an isolated and incompatible product island.

It is indeed more than 'just a few wires'. It's an audio transport system that goes way beyond simple inter-connectivity. It is scalable, easy to set up, offers that most crucial of things in live monitoring – low latency – incorporates quality front-end analogue architecture, the future ability to 'cut out the middle man', and interface directly with a DAW. Coming from a broadcast background, I can see it has definite applications, especially when the Pro Tools interface Red 5 is released. No wonder John Crossley said he now wouldn't be able to operate without it.

So what that there were all sorts of whispers flying around a few months back that it was never going to see the light of day? Sometimes things are worth waiting for.

And, excusing the pun, the market is Redy for it!

Information

Feature Set
- **Based on the Dante protocol**
- **Near-zero Latency**
- **Up to 512 channels (I/O) at 48kHz per GB Ethernet link**
- **119dB dynamic range, 24-bit resolution, up to 192kHz sample rate**

Manufacturer
Focusrite
www.focusrite.com

Price Details
GB£799-2,599.00 (exc.VAT)

"This is really what it is all about – an experience where it sounds better, feels better to your body, and allows the thought process of your brain to reach out and touch the audio, without being impeded by a mouse, or by the constraints of traditional analogue desk design."

Steven Slate

Slate Pro Audio **Raven**

Control and Monitoring System

The Slate Pro Audio Raven MTX multi-touch production console has had people talking since it was launched at the AES show last year. The NAMM showing of the smaller version was equally popular, and since then, the YouTube demo has accumulated 100,000 hits in just two months. Steven Slate himself recently accompanied a Raven into Europe with a stop at Theatre 1, Halo Post Production, for an early public demo curtesy of MediaPros.

I managed to catch up with Steven Slate and talk to him about the unit, its inspiration, and its philosophy.

Mike Aiton: Where did the Raven name come from?

Steven Slate: All the Slate Pro Audio gear thus far has had an animal name, for instance The Dragon compressor, The Fox mic pre. I knew I wanted a dark, almost mythical theme for this revolutionary product, and Raven just seemed to stick.

Aiton: When and how did you conceive the concept of a touch-controlled mixing desk?

Steven Slate: I had built an analogue monitoring console that was supposed to go alongside a bunch of third party motorised faders, and then co-creator Alex Oana joined the company as VP Creative Operations. Somewhat boldly for a new employee Alex said 'it didn't make much sense' and he 'rejected my genius'. He said, 'It should be one big touch screen, it's a computer'. Within three seconds I had visualised the product. He was right. I have never had something make so much sense so quickly.

...From that exciting day on, we went on a fantastic year and a half long adventure to create the ultimate touch screen controller for the audio industry.

Aiton: What difficulties did you meet on your design journey?

Slate: For one thing, touch screen technology at the time that would meet the demands of an audio professional didn't exist, so we had to work with companies to get the technology to the point where it made sense. We needed a screen with a stringent set of accuracy and response times that we felt would make the product sing. We needed a software way of controlling Pro Tools, but Mac OSX is not natively multi-touch. We needed a clever way to turn multi-touch gestures into single clicks. Try to mix Pro Tools with a mouse and you can only touch one fader at a time – we needed to make this a true multi-touch experience where you can move handfuls of faders at once, like an analogue console, and effectively transmit and communicate this information to Pro Tools. That required some very clever software solutions from very smart programmers with a lot of expertise. We have licensed Neyfi technology from the industry leader in control, Paul Neyrinck. It's a very powerful, neat, and effective solution.

From The Manufacturer:

"If you know Pro Tools, then you pretty much know how to use The Raven. Within half an hour you will be fluid, and within an hour you will be flying and be an expert. That's part of the fun. The same will be true for Logic (which will be ready by the first production run) and then so forth for the other DAWs that we will be supporting."

Steven Slate, Slate Pro Audio

Aiton: Others have tried but failed with similar products, where did they go wrong?

Slate: The primary example of this failed because it was single touch only and not multi-touch. There was no protocol to connect to Pro Tools and the surface was just accessing the Pro Tools mixer. As you can see, a lot of the genius of what we are doing is that we have built an interface that wants to be touched. We have built a 'bad ass mixer' that communicates with Pro Tools using Paul's protocol. The second reason that other touch screen attempts have failed is because they were not integrated packages with built-in monitor controllers and headphone controllers.

Older attempts also had severe parallax errors… Due to very thick glass where the finger to image distance was incorrect. Our glass has a fantastic nano-glide feel, three times more slippery than the iPad. Its all these little details that make the product so great. You just want to reach out and touch the audio and get immersed in your mix.

Mike Aiton: Can you explain how the ergonomics of the desk came about?

THE REVIEWER
MIKE AITON was weaned at the BBC. But after breaking free nearly 15 years ago and becoming one of London's busiest freelance dubbing mixers, he can mostly be found at his Twickenham dubbing suite, Mikerophonics. In his spare time he takes therapy for his poor guitar playing and his addiction to skiing.

Raven Ravings

The Raven MTX is a state of the art touchscreen display featuring The Raven Mixer, a powerful multi-touch mixer that will control all major DAWs. It has a uniquely flexible and user-customisable, multi-function toolbar.

In terms of hardware, The Raven incorporates a fully-featured digitally controlled analogue monitoring section with multiple speaker outs and input sources, smart phone connectivity, USB, multiple headphone send and cue options, and much more.

At the heart of The Raven MTX is the most exciting thing of all – your DAW under fingertip control.

This is the Rolls Royce of touchscreens in terms of performance, feel, and build quality. On this 46-inch screen, plug-ins become the size of 19-inch outboard gear, and you can easily tweak the controls with your fingers. This is a world-first in DAW control, making it easy to directly interact with your mix with fingertip control.

In Toolbar mode, The Raven Toolbar is anchored directly in front of your hands at the base of the touch display. Your DAW controls are where you want them: Transport, Edit/Mix window selector – convenient tools for tracking too, like Record Looping, Click, Create Group, and Undo. You can use intuitive multi-touch gestures on the Raven NAV PAD to perform Scrub/Shuttle, Waveform Zoom, Track Zoom, and Track Banking.

Raven's customisable hot keys open up the world of possibility for creating your own buttons for frequently used functions.

Best of all, because The Raven Toolbar is virtual, it's user-customisable – and you put the controls you want where you want them.

The analogue section of The Raven is 100% digitally controlled analogue circuits. No scratchy pots or noisy switches, ensuring that your monitoring path is the most minimal possible. The sound is clean, clear, and articulate. The monitor section has four speaker outputs, multiple source inputs, built-in laptop reference speakers (affectionally known as Betty), eight channel cue outputs for custom headphone mixes through optional headphone mixers, a 7.1 module for surround mixing and mastering, and even convenient console-top USB ports to plug in thumb drives, dongles, and external hard drives. You can directly monitor your Apple idevice with Raven iDock. Studio communications are easy with multiple talkback mic options, including Raven's hands-free auto activation when the transport stops (with a red warning light to prevent talent faux pas, of course!).

Steven Slate: I have back trouble and a lot of it has not been helped by mixing on an analogue console for over a decade. Now on The Raven, I can just work, and keep my back straight at all times. I can touch everything from opposing sides; it's such a superior way of doing it. We consulted top ergonomics experts who showed us why draughtsman and designers work at 45-degree angles. We also consulted top acousticians that love this design as no reflections occur from your desk and you get none of the comb filtering of the lower mids that traditional desk designs suffer from. This is really what it is all about – an experience where it sounds better, feels better to your body, and allows the thought process of your brain to reach out and touch the audio, without being impeded by a mouse, or by the constraints of traditional analogue desk design.

Some people say to me 'Oh I can't use a touch faders,' but they have never used touch faders. They say, 'Oh I have used it on my iPad…' But now they are comparing a 10-inch screen to large, hi-res fader on a state of the art 46-inch screen. It's a completely different experience and is like comparing a Mini to a Ferrari.

The whole fader thing has been kind of interesting. It is such a simple unsophisticated device, yet it attracts so much ridiculous fervent nostalgia. When it comes down to it, it is such a simple device and performs only one function, a very important one mind you, but only one simple function; it goes up and down and makes your volume louder or softer. You could explain this to a three year old! In 2013, to pay many hundreds of dollars to put a little motor in a device that just goes up and down seems rather ridiculous and financially inefficient.

Aiton: What about the visual aspect of fader moves?

Slate: People say 'I want to be able to move it while I look.' To grab any fader, at some point your eye has to glimpse which fader you are going to grab, that we can't change, but once you have touched the fader it is of course very easy to ride that fader without looking. As long as your finger doesn't leave the glass, you can ride that fader.

When people do get on The Raven, they get over these prejudices very quickly. Steve Lilywhite is on our board of advisors and he loves it. People find it almost instantaneous to adapt. For people like him who have spent their whole lives on traditional faders, it is just so quick to adapt you soon forget there is any difference.

Aiton: So why did you choose the integrated package of monitor controller and talkback?

Steven Slate at the European launch of Raven.

Slate: I think the concept of an all in one product is a very strong one. There is something to be said for the success of Steve Jobs and Apple and the fact the hardware is designed to run the software and everything is integrated together. I wanted to build The Raven so that you buy it, connect it to your computer and DAW, and then just get immersed in making music. Our monitoring section is technologically superior to anything out there and is a digitally-controlled pristine signal path.

Aiton: What is the learning curve like for this desk?

Steven Slate: If you know Pro Tools, then you pretty much know how to use The Raven. Within half an hour you will be fluid, and within an hour you will be flying and be an expert. That's part of the fun. The same will be true for Logic (which will be ready by the first production run) and then so forth for the other DAWs that we will be supporting.

Mike Aiton: What does the future hold for The Raven?

Steven Slate: That's a really great question. The cool thing about having a virtual environment is that over time, you can upgrade the software and achieve more things in a better way as the product evolves, just by coding the software. This is just not so true of traditional mixing desks. A faster, more efficient, and more fun workflow that improves even further over time. What's not to like?

Information

Feature Set
- **Touchscreen display**
- **Analogue monitoring section**
- **Multiple speaker outs and input sources**
- **Smart phone connectivity**

Manufacturer
Slate Pro Audio
www.slateproaudio.com

Price Details
GB£TBA

"…the build quality is very good, the unit solid, and the buttons and switches give rise to road-ready confidence."

Alistair McGhee

Allen & Heath **ICE-16**

16-Channel Multi-track Recorder

What if? The question digital never tires of answering. What if my USB audio interface could be detached from my computer and become a standalone recorder? What if, my standalone USB recorder could be attached to my computer to serve as an audio interface? Well, Mr. Allen and Ms. Heath must have been wondering the same thing, for just such a beast has been released by A&H under the moniker of ICE-16.

At the heart of the ICE is an Archwave chip, and here A&H is in pretty good company: Prism Sound uses an Archwave solution for its Orpheus and Apogee for its Ensemble.

Of course, there's plenty of room outside the Archwave chip for manufacturers to distinguish their products in the analogue side of the their design.

An Issue Of Compromise

When you build hybrid devices of any kind, one of the questions that looms large is the issue of compromise. 'Will the compromises inherent in design built to a price outweigh the advantage of the hybrid itself?'

When we look at the ICE-16, it's pretty easy to see what sort of compromises have been made – this is a cost conscious piece of hardware. The street price of the ICE-16 is well, well under a grand; inputs and outputs are all at line level and are unbalanced, jacks on the way in and phonos on the way out. All this fits snugly into a 1U format, hence the phonos on the outputs. Having said that, the build quality is very good, the unit solid, and the buttons and switches give rise to road-ready confidence.

I started by plugging it into my XP machine where it replaced an Edirol UA101, eight in and eight out with two mic pre-amps on the front panel. Difficult to compare like with like, but the current offering from Roland – the Octo-Capture UA-1010 complete with eight mic pre-amps – is about seventy percent of the cost of the A&H.

So, 'What happened to my mic pre-amps?' I hear you cry? And the answer to that is very simple. You already have them in your mixing desk. Why pay for them twice? You don't expect your multi-track to have mic inputs, and the ICE is closer to a multi-track than it is to a bog standard PC audio interface. The idea behind the ICE-16 is that you strap it across the direct outputs of your desk (you have got direct outputs on your desk, haven't you?), and hey presto: you have a 16-track recorder. But in this day and age is sixteen tracks enough? Probably not (and I think this would be just as true if the ICE offered 24 tracks), however, you can daisy chain ICE-16s over firewire to get 32 tracks into your computer. Well you can – I only had one. The other option when using the ICE as a standalone recorder is to 'sync' two ICE-16 recorders via the nine-pin mini-din socket on the back of the machine. It has to be said that hardware is in front of firmware here, and the current firmware doesn't support sync – but promises for early 2013 abound.

From The Manufacturer:

"I like making things simple and the ICE-16 makes life easy in many ways. Recording multi-track at a live show no longer requires booting up a laptop and configuring a session – just plug in, turn on, and press 'record'. ICE-16 is also ideal for connecting audio to your DAW in the studio, or for expanding your existing system to add channels."

Mike Griffin, R&D Designer, A&H

Start Up

Anyway, back to the plug-in: XP (I should say there's also Windows 7 support, but no Windows 8 as yet, and core audio support in OSX means no drivers required) hurries off to find a USB driver and of course fails. So, download the latest from A&H and run the install routine. Bingo: up comes the ICE, no restarts or other painful behaviour, and you have a 16-in/out box attached to your machine. The firewire install works exactly the same way: follow the instructions and it's pain free.

The simplicity of the ICE means not much tweaking is available; there's a front panel switch to select input or output monitoring, and a button for each channel allows you to monitor channels singly or combined. Each channel also sports signal present LEDs, one for each channel illuminating at signals above -40 odd, and also a red warning LED that lights up when you have 6dB of headroom left before clipping. There's no gain control on the hardware input or output, and none in the software control panel – what you see in level terms is what you get.

Fixed Qualities

Moving to ICE as a standalone recorder, the first point is that it's a fixed format device. At 48 or 44.1kHz it is a 16-channel device, while at higher sample rates (88 or 96K) the track count is reduced to eight. There's no option to 'arm' tracks – it's all or nothing. And here the quality of your drive comes into play. High bit rates require a faster drive, and probably a drive will be better than a 'stick'. In order to get max data rate through the device, the ICE formats your device with 32KB clusters, and if you have a drive that you think should be faster then try formatting it in the ICE before use. It's worth noting that the ICE-16 doesn't support NTFS, it's a FAT32 party.

So plug in your drive – if the drive is new to the ICE it will test it to give you a speed indication, 'Slo' being too slow, 'Hi' gets you 24-bit, and 'Lo' 16-bit. The bit depth is set automatically, depending on the speed of the device. And here we begin to meet one of the ICE's

THE REVIEWER
ALISTAIR McGHEE began audio life in Hi-Fi before joining the BBC as an audio engineer. After ten years in radio and TV, he moved to production. When BBC Choice started, he pioneered personal digital production in television. Most recently, Alistair was Assistant Editor, BBC Radio Wales and has been helping the UN with broadcast operations in Juba.

limitations – although the display is a fetching and bright blue you only get three digits and all control is through the transport keys. The device isn't complex, but I would tape a copy of the menu structure to the top of the machine, especially for the first few gigs. A single press on the time button tells you how much record time you have available, up to 99 minutes. There is currently no indication of time recorded or file length and the same limitation occurs in playback, in that you can't see how far you are into the file being played back or indeed its overall duration.

I think what this means in real life is to do your homework before you set out. Sixteen channels of 44.1kHz audio at 24-bits requires about 8GB an hour. With each track recorded as a mono wav, the FAT 32 maximum file size limits you to about eight hours of recording at 48kHz. In brief, buy a decent USB hard drive and always start with it empty – you know it makes sense.

Conclusion

The ICE-16 is not without compromises, though a couple of those points could be corrected with a software revision. On the other hand, you're not buying a fully featured standalone 16-track recorder; you're not going to replace your two-inch Studer with one of these. But if you want 16-in and out at your PC and you have mic amps already covered, then this is a good option, and if you want a 16-track to record the gig PC free, at the press of one button this is for you. Especially if you envisage going to 32 tracks later. And for FOH, the ability to do virtual sound checks is the icing on the cake… or the ICEing on the cake. Sorry.

Information

Feature Set
- 16 analogue inputs and outputs
- Hybrid FireWire/USB 2.0 16x16 audio interface
- 24-bit, 96k sample rate
- WAV file format

Manufacturer
Allen & Heath
www.allen-heath.com

UK Distributor
Audio-Technica
www.audio-technica.com

Price Details
GB£654.00 (exc.VAT)

"I initially thought about how much like analogue tape it sounded, but not like a simulator; there's a thickness it adds that no other plug-in exactly delivers – and for me, that's a rare compliment, indeed..."

Rich Tozzoli

Waves REDD .17 & .37-.51

Console Plug-ins

Waves' REDD plug-ins are based on 1957 custom-designed consoles from Abbey Road's Record Engineering Development Department (REDD). The REDD .17 still resides at Abbey Road, and the REDD .37 is owned by Lenny Kravitz. The plug-in pair is Native, and available Mono or Stereo for PC and Mac-based DAWs.

Both plug-ins feature similar controls but are laid out differently. They each have slightly different sounds, based on the character of the original modelled consoles. For the sake of this article, I'll focus on the REDD .37-.51.

Features

The REDD 37-.51's Spread control has three positions: stereo linking, Duo (independent channels), and MS, which applies an MS encoding matrix for Mid/Side control. There are VU Meters for output display, VU Level Calibration, and a Peak Meter.

The next row has knobs to select the Amp Type – either REDD .37 (Siemens V72) or REDD .51 (REDD 47); Channel Select and input gain controls, and Bass Lift with its low-shelf 9dB boost (originally to compensate for LF loss in fig-eight condenser mics) and -10dB pad options.

Next is EQ Select for Classic (high and low shelves) and Pop (low shalf, high bell) EQ types. Below that is the Tone High and Tone Low knobs, offering ±10dB in .01dB steps.

On the right side, the Monitor knob selects output source, which selects different summing and selection options depending on the Spread mode. The Drive knob can either add distortion to the signal when turned up, or deliver a cleaner sound when turned down. The Analogue control is used for modelled noise and hum. The Large levels/faders and the right control the master output level.

In Use

This is one of those plug-ins I used for a week before reading up on what any of the controls did. I just plugged it into a session, started turning knobs, and was immediately floored by its effect on my audio. I initially thought about how much like analogue tape it sounded, but not like a simulator; there's a thickness it adds that no other plug-in exactly delivers – and for me, that's a rare compliment, indeed, as the thickness also adds clarity when boosting the highs. It's pleasing to the ears and sounds familiar.

I started with it on a Mesa Boogie MK IV amp track, recorded with a Sennheiser 421.

Those mics are inherently warm on guitar amps, but selecting the REDD .51 amp type, Pop setting, and boosting the Tone High a few dB (at 5 kHz) brought out the edge of the guitar with no brittleness.

With that success, I knew it would work on bass, so I put it on the DI of an old '70s-era Fender P bass. Switching the Bass Lift control to the left delivered a 9dB boost that added a massively thick bottom. I trimmed back the highs a few dB and kicked up the Drive control (for a heavy rock track), this time turned up the Output control (unlike Gain, it does not add distortion to the signal). Wow – what a sound; it was like an old record.

I've experimented with many ways to use this plug-in. On drum loops, select REDD .51, turn up the Gain for grit, and turn down the master Output. Using Pop mode, a Tone High boost at 5kHz brings out hi-hats and cymbals. Clicking on classic, I can hear it change to 10kHz with more of an edge. There's something about the smooth 5kHz boost of Pop mode that never seems to get in the way. I've been using the plug-in for several weeks, and I've used it on every single session, in some way.

Summary

Of course, one might expect to hear words like 'warm, fat, rich, analogue, or musical' when talking about old consoles from Abbey Road Studios. And I have to say that's exactly what these modelled REDD plug-ins deliver, and then some. With the ability to independently adjust amp type, EQ type, Tone, drive, and 'analogue' sound, REDD users will have quite a bit of control at their fingertips. Even more importantly, the extra control is incredibly useful to overall mixes. If I was seeking character-filled hues to deliver something extraordinary to my tracks.

REDD could easily be my new favourite colour.

Information

Manufacturer
Waves
www.waves.com

UK Distributor
Sonic Distribution
www.sonic-distribution.com

Price Details
US$249.00 (Native only)

THE REVIEWER
RICH TOZZOLI is a Grammy-nominated engineer, mixer and composer as well as PAR's Software Editor. richtozzoli.com

"It's the kind of sound that infects your mix with a lush analogue sweetness."

Alan Branch

UAD API 550A & 560

500 Series EQ Plug-in Collection

Classics Reborn is the latest news from UAD, which along with an update to UAD software 6.5 now comes with some all time classics, the API 500 EQ series, and the Teletronix LA-2A Classic Leveler Collection. The API 500 series has two iconic EQs from years gone by: the 550A EQ, renowned by so many producers and engineers as a killer tone shaper for drums and guitars; and the API 560 10-band graphic, noted for its quick wave shaping and the same tonal dissection of API sound.

API founder Saul Walker developed the 550A EQ in 1971 for use in the company's own consoles. Its success stems both from its discrete design and the use of Proportional Q, enabling the EQ to widen automatically when cutting, and narrow when boosting. API EQ packs immense punch and sonic definability – certainly as an engineer, my personal experience on an API desk has been one of a natural musicality. It feels 'right' when you're working the EQ and listening to the changes.

The UAD API 550A plug-in is a three-band parametric EQ with five pre-selected frequencies, and bell/shelf switches on top and bottom. The front panel graphic uses the distinctive dual-concentric gain controls (±12dB), and a 50Hz-15kHz bandpass filter switch. There is also a bypass as well as a power button – like the original API, even with the EQ bypassed signal still travels an API path, which is often referred to as the 'magical API sound' that occurs just by patching it in.

The UAD 560 is a ten-band graphic EQ, with the same 'Proportional Q' filter and ±12dB; but being a graphic has the visual ability of shape control – this can often be a quicker method of tone shaping even with a mouse, and very useful for gentle trims to the sound.

In Use

The UAD API 550A and the 560 hardware versions have distinctive control, mostly due to the dual concentric knobs, and it's the same with controlling the software version. Rotary software knobs aren't the easiest to use with a mouse, and often harder with a tablet Pen – although you can hover over the knobs and use a mouse wheel to 'click' the settings up and down. Having said that, UAD has done a great job with a circular-type motion control, and the stepped adjustments it isn't rocket science to make the basic selections.

The API front plate looks a little washed out, with a used and abused character to the GUI. It might have been nice to pick out the frequency ranges in a clearer, bolder blue. I also thought that the state of the shelf switches could have been clearer.

From The Distributor:

"Studio lore dictates API EQ is the thing to use on drums and guitars, but that always struck me as selling them way too short. Put a 560 on a master bus, and just go down the panel: little notch here, bump there, let your ears guide you – then A/B with and without.

I know of no other EQ with quite the same ability to polish a track in one go. It adds sweetness and air without sizzling, and adds thump to bass without sounding woofly. Desert-island EQ. We look forward to UA bringing it to the wider world."

Alex Theakston, Source Distribution

The stepped frequency and gain might seem strange to a new API user, and somewhat limited, but the sound is something special. They have an immediate effect on practically any sound – as I said earlier, a very musical changes, giving great punch or warmth in the low end, whilst the top end remains smooth and rounded without sounding harsh.

Even with no EQ switched in, the UAD API has an analogue effect, and the simple use of the 50Hz-15kHz filter switch can be a good one to learn for anyone new to filters, as it really helps to clean up a mix by getting rid of frequencies you really don't need on a lot of tracks. Dialling in EQ with the API is different to a typical swept EQ and adjustable Q. The 550A jumps in huge 2dB chunks, but using it on drums and guitars, great results are relatively simple. The 550A bands overlap, ensuring you can reach every frequency range, and the selected frequency centres are limited but work just fine. Whilst the 560 is different in operation and covers a slightly higher and lower frequency range, it still has that API tone when shaping the sound, and is a bit quicker due to the graphic controls. Controls reset to centre with an Apple/click or the 'o' label on the 560, and a master output knob provides +12dB or -24dB of gain.

Conclusion

UAD has excelled once again by bringing accurate and excellent emulations of classic hardware, and with a hardware unit like the UAD Apollo you could even track with these plug-ins, which is very exciting. They faithfully recreate the look and sound of the original API 550a and 560. It's the kind of sound that infects your mix with a lush analogue sweetness. This historic API design can often dial in more tone and musicality quicker and better than most EQs can dream of.

Information

Feature Set

- API 550A discrete, three-band bell/shelf parametric equaliser
- API 560 discrete, 10-band graphic equaliser
- Models the entire electronic path, including custom API 2520 op-amps and transformers, band interactions, and internal clipped filter distortion

Manufacturer

Universal Audio – www.uaudio.com
Source Distribution (UK) - www.sourcedistribution.co.uk

Price Details

US$299.00 (for both plug-ins)

ALAN BRANCH is a freelance engineer/producer and ex-member of the On U Sound Crew. His long list of credits include Jamiroquai, Beverley Knight, M People, Simply Red, Depeche Mode, Shed 7, Sinead O' Connor, Bjork, and Sade. www.alanbranch.com

Ultra High Definition

The recent launch of new 4k TV sets and Ultra High Definition broadcast channels has put the focus on higher resolution image technologies. KEVIN HILTON fills in the fine detail on resolving power.

The latest technical term to hit the public domain is 4k. This has been a major talking point in professional circles over the last ten years or so as directors of photography, camera operators, and post-production staff have come to terms with new digital technologies that are able to capture more detail in a source image and reproduce it to produce higher resolution – or definition – television and cinema pictures.

Greater resolution has been the aim with each successive introduction of acquisition and, perhaps more crucially, display technologies. Film and (latterly) video cameras have been capable of high resolutions for some time, and while cinema has been able to exploit this by combining good quality projection with the big screen, TV has been restricted by transmission bandwidths and the capacity of home displays.

The introduction of digital for delivery – and the switching off of analogue TV transmitters in many countries, most recently the UK – as well as shooting and post-producing programmes has made higher resolutions possible all round. In this context the number of pixels that can be used to capture and then reproduce the images is the key to greater resolving power, which results in finer detail.

GLOSSARY
Resolution
Also known as resolving power, resolution is the amount of detail in an image and the capability of a lens, film stock or digital medium to accommodate it. The greater the detail, the higher the resolution. In film fine-grain emulsion stocks produce a better resolution than those with a coarser grain. The resolving power of a lens or film is measured using a resolution chart and gauging the number of lines that can be differentiated from each other in a millimetre. The resolution of a camera, rather than its lens, is defined by the number of pixels that can be used on the acquisition media. Resolving power can also be affected by contrasts in the image, closeness to the camera and the length and intensity of exposure, as well as the physical nature of the recording medium. Definition is often used interchangeably with resolution.

Charting Power

Resolving power is graduated on charts that have high contrast and do not take the details of low contrast areas into account. Because of this and the fact that resolution does not always indicate detail seen by the naked eye, acutance was often used as a better measure of sharpness and clarity in an image. Acutance measures the density changes at the edge of an image on a negative from the weaker to the stronger exposed sections. A microdensitometer was used during the film developing process to accurately assess picture sharpness.

In digital imagery resolution is determined by the number of lines per inch for vector graphics and pixels per inch in raster graphics. A raster was the individual frame on a cathode ray tube (CRT) television screen comprising a series of parallel scan lines. The raster count in analogue systems was 525 for NTSC and 625 for PAL. Raster graphics is a form of computer graphics with images formed from many pixels, small dots of colour that give colourful pictures instead of the black and white of vector graphics.

"Film and, latterly, video cameras have been capable of high resolutions for some time, and while cinema has been able to exploit this by combining good quality projection with the big screen, TV has been restricted by transmission bandwidths and the capacity of home displays."

In today's TV world resolution is most commonly measured in terms of the number of pixels in the horizontal plane of a picture. This is represented by the symbol 'k' for a thousand. As high definition (HD) became a major consideration for TV production during the early 2000s, 2k was used for making commercials and high-end broadcast material. 2k operates in real-time at 2048 horizontal pixels. 4k, at 4096 horizontal pixels, was initially seen as viable only for film projects, special effects, and any project that required higher resolution, which, at the time, did not include broadcast television.

That attitude and situation is changing now as broadcasters begin to look beyond HD towards formats with much greater resolutions. HD has been a step up from the line resolutions offered by analogue colour coding/scanning technologies – 525 for NTSC and 625 for PAL and SECAM – by giving a choice of 720 active lines progressive, 1080 lines interlaced, or 1080 lines progressive.

Enter Ultra High Def

Even before HD was fully established on an international level, NHK Science and Technology Research Laboratories, the R&D division of the Japanese public broadcaster, was working on a format with a screen resolution 16 times greater than existing HD that works in conjunction with a 22.2 channel immersive surround sound system.

Known as Ultra High Definition television (abbreviated as Ultra HD, UHD, or UHDTV), this has been developed as two separate formats: 4k UHD, with 2160 lines progressive, and 8K UHD (4320p). In Japan 8k UHD has been branded Super Hi-Vision, which associates it with the country's Hi-Vision HD system.

Although 4k is being used as a term for public discussion by both TV set manufacturers and broadcasters, the Consumer Electronics Association announced in October last year that displays with an aspect ratio of at least 16:9 and a minimum of one digital input that is able to carry and reproduce native video at the basic resolution of 3840×2160 pixels would be marketed as Ultra High Definition or Ultra HD.

REFERENCES

The Complete Film Dictionary, second edition by Ira Konigsberg, Penguin Reference 1997

High Definition and 24p Cinematography by Paul Wheeler, Focal Press 2003

TECHNOLOGY NEWS
Ultra High Def Broadcast

Europe's first Ultra High Definition (UHD) television channel was launched on January 8 by satellite operator Eutelsat. Since then Spanish public broadcaster RTVE, in conjunction with the European Broadcasting Union (EBU), has introduced terrestrial UHD transmissions.

Eutelsat says its new service was created with the aim of helping production companies, pay-TV channels, rights owners, and set manufacturers get experience in the emerging 4k technology. The satellite carrier is working with video compression specialist ATEME on the new service, which runs at 50 frames a second in progressive mode, encoded in MPEG4, and transmitted at 40Mbit/s as four Quad HD streams. Services are being uplinked to the EUTELSAT 10A satellite from the operator's Rambouillet teleport near Paris.

Commenting on the recently launched channel Eutelsat's Commercial Director, Jean-François Leprince-Ringuet, said, "This new step towards 4k continues Eutelsat's longstanding commitment to achieving new broadcast milestones that over the last 20 years have included digital TV, HDTV, and 3D. Early and close collaboration between all players in the broadcast chain will be a key success factor for this new revolution."

RTVE staged its first terrestrial UHD broadcast in Barcelona at the end of February using UHD-1 technology, which is based on a resolution of 3840x2160 pixels. The transmission, also involving Abertis Telecom, SAPEC, Sony, Apuntolapospo, UPM, and URL, employed the DVB-T2 digital terrestrial TV format.

The broadcast was shown on an 84-inch screen during the Mobile World Conference 2013, and featured footage of Barcelona encoded in the H.264/AVC compression format at 35Mbit/s.

Lieven Vermaele, the EBU's Technology and Innovation Director, commented, "The EBU is committed to exploring the potential of new transmission technologies and new video formats. Through our support for this demonstration we are helping to ensure that the needs of public service broadcasters are taken into account as together we shape the future of television."

On the programme side, UK outside broadcast company SIS LIVE tested 4k acquisition at the beginning of last month during a Premier League football match between Newcastle and Chelsea. Another leading British OB operator, Telegenic, is in the process of building a new 4k-ready truck, which it says should be on the road by the middle of this year.

PRODUCT FOCUS

LG
84LM960V
84-inch 4k TV
Contact: www.lg.com/uk/tvs/lg-84LM960V

Specifications:
Screen size: 84-inches
Display Type: LED
Resolution: 3840 x 2160
Motion Clarity Index: 800Hz
3D type FPR (CINEMA 3D)
Format S/S, T/B, C/B, F/S
Triple XD Engine
Aspect Ratio Correction: Eight modes (16:9/Just scan/Original/4:3/14:9/Zoom/ Cinema Zoom/full wide)
(HDMI/Component/RF)1080i/1080p/720p
Just Scan
Resolution Upscaler (Basic/Plus)
Smart Colour Gradation
Dynamic Colour Enhancer
Contrast Optimiser
AV Mode: Game/Cinema/Off
Picture Mode: Seven modes (Intelligent sensor, Vivid, Standard, Cinema, Game, isf Expert1, isf Expert2)
Picture Wizard II
Digital Video Recorder

Ultra HD, 4k TV sets were previewed by a number of leading manufacturers at the 2012 CES (Consumer Electronics Show) expo in Las Vegas. In the year to the 2013 exhibition a range of UHD equipped receivers has come on to the market, with Sony, Samsung, and LG particularly jockeying for position.

LG claims to have introduced the first 84-inch 4k set in the shape of the 84LM960V, although its thunder has been stolen by the more recent release of Samsung's S9 85-inch monster.

Despite this LG still has the first big (big) screen LED UHD TV that is now widely available, with stock coming into the UK at the end of last year. As well as the higher resolution 4k technology, the 84LM960V is also 3D capable and has Smart TV connectivity to link it to PCs and mobile devices for streaming and general computer functions, such as email. On the audio side it is 2.2, making it stereo but with two sub-basses.

Reviews have highlighted its stylish design and, more importantly, the excellent picture quality, made possible by the greater resolution. Reviewers have also focused on the outrageously high price tag. At £22,500 (€25,984/US$36,645) it is eye-wateringly expensive, within the reach of only the very rich or obsessive home cinema buffs, but it is also a sign that UHD is being seen as the next step in broadcast TV.

win!

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Gil Norton: Foo Fighters, Pixies, Gomez, Feeder, Counting Crows, Maximo Park

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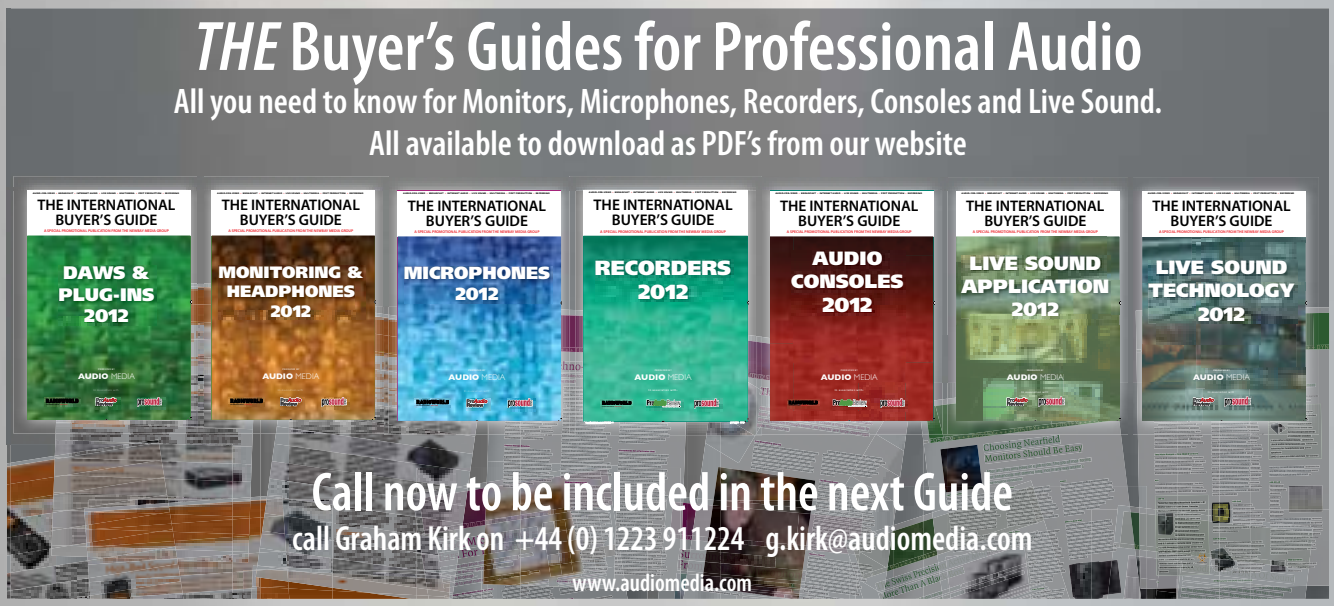
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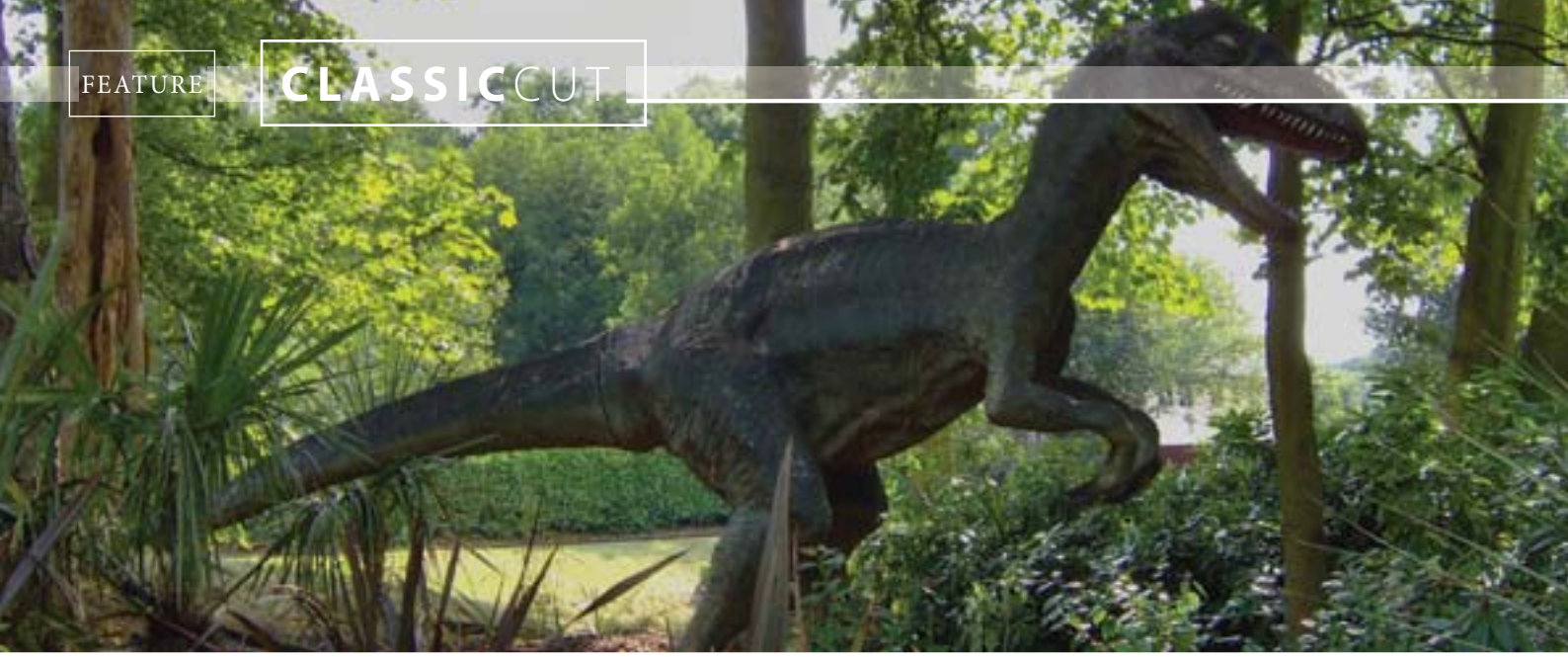

Jurassic Park

KEVIN HILTON

The reputation and popularity of a film often rests on a single thing. *Jurassic Park* (1993), which celebrates its 20th anniversary this year, is remembered for its combination of animatronics and groundbreaking – for the time – computer generated dinosaurs. But the audience's first introduction to these resurrected and recreated prehistoric creatures is not through visuals, but sound.

Like any good director, Stephen Spielberg saves the big reveal for later in the film. During the pre-credits sequence he teases us with noises made by a big, aggressive animal of some sort that is obscured by undergrowth and a wooden crate. The beast is being loaded up for transit by a group of nervous workers, overseen by game warden Robert Muldoon (Bob Peck).

They are barely in control, and when one of their number is dragged into the container Muldoon orders them to use their tasers. These zap uselessly. The creature roars out in pain and anger, keeping a grip on its screaming prey. Then the pen door slams shut with an ominous crash.

"Fierce animals such as lions, alligators, and tigers make up a proportion of the T-Rex's roar. There is also some very noticeable elephant in there. More surprising is the inclusion of a koala bear."

Kevin Hilton

This sets up the rest of the film. The creature was a Velicoraptor, just one of many dinosaurs brought back by being cloned from DNA found in the blood of late Jurassic period mosquitoes preserved in amber. This is a brainwave of showman and entrepreneur John Hammond (Richard Attenborough), who has created the visitor attraction of the movie's title.

In the wake of the raptor attack Hammond's financial backers have demanded assurances that Jurassic Park will be safe. A team of experts – palaeontologist Dr Alan Grant (Sam Neill), paleobotanist Dr Ellie Sattler (Laura Dern), and rock star-like chaotician Dr Ian Malcolm (Jeff Goldblum) – is assembled to assess and endorse the site.

The viewer shares the expectation of the scientists and Spielberg plays on this, again aurally. At one point a dinosaur is heard approaching, its footfalls echoing thunderously out of the bass loudspeakers.

To match the CG images, which look a little clunky by today's standards, and Stan Winston's impressive mechanical dinosaurs, Sound Designer Gary Rydstrom had to come up with audio effects that not only brought them to life even more but gave different dinosaur species their own character.

The obvious problem was that no one knows what dinosaurs sounded like. In *One Million BC* the T-Rex roars like a lion – most likely because the sound engineers had these effects. Scientists now think dinosaurs did not make such dramatic noises, but probably gurgled.

That would not have had the necessary scare factor, so Rydstrom set about building up layers of sounds from contemporary animals to create the different voices of the prehistoric cast. In a presentation to an MPSE (Motion Pictures Sound Editors) meeting, he admitted he panicked at the thought of this, but eventually realised a combination of everyday animal sounds might produce something that could have come from an era before our own time.

Fierce animals such as lions, alligators, and tigers make up a proportion of the T-Rex's roar. There is also some very noticeable elephant in there. More surprising is the inclusion of a koala bear. Rydstrom says a keeper at San Francisco zoo asked if he wanted to record the marsupial; he said yes, expecting something cute. Instead he got what he described as a "BRRRAAHR sound", which adds a different dimension to the predator's cry.

The big dramatic audio cues, however, are not the most unsettling. Even though the thumping of dinosaur feet features earlier in the film, the T-Rex attacking the stranded tour jeeps is all the more powerful by the characters hearing the creature approach and seeing vibrations in bottles of water. As they sit terrified in the vehicles the T-Rex looks in, its breathing ratchets up the tension. This sound came from a more benign source, the blowhole of a whale.

The T-Rex becomes the unlikely hero of Jurassic Park, seeing off other aggressive dinosaurs that are hunting the humans. Among the supporting cast are Dilophosaurus (a combination of howler monkeys, hawks, rattlesnakes, and swans), and Brachiosaurs (a whale and a donkey), but the show really belongs to the Velicoraptors. Rydstrom created their cries by mixing elephant seal pups, dolphins, and walruses.

More mundane but no less effective is the use of horses. A horse snorting – combined with the strange sounds of a de-barked dog – make up the breathing of the raptors as they stalk Hammond's grandchildren in the kitchens. A horse eating a corncob provides the suitably gut-wrenching sound of someone being chomped by the T-Rex, while a mare squealing at the sight of a male horse gave the death cries of the Gallimimus as it is eaten by the king of the dinos.

A constant presence in Speilberg's films is the music of John Williams. In many – notably *Jaws* and *ET* – it has been as effective as the sound design in creating moods. On *Jurassic Park*, aside from a characteristically sweeping opening theme, Williams' music can be a bit obtrusive. This is particularly true in the early scenes, when the score is constant and mirrors every action and movement on screen – so-called 'mickey mousing'. It's probably an homage to *One Million BC*, which had sparse sound effects and little dialogue beyond grunts and odd words, and so relied on Werner R. Heymann's music to fill in the gaps. But in a contemporary film this can smother.

The sound design, on the other hand, still sounds fresh and inventive. Even if, like a beef pie, it does have some horse in it. AM

"I was suspect at first, but after a few minutes with the Recoils I realized how much difference they made. They work."
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– Daniel Lanois
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"With Recoils, when I listen to my recordings elsewhere, the results are more like what I hear when I record."
– Ed Cherney
(The Rolling Stones, Bonnie Raitt, Jackson Browne, Eric Clapton)

"With Recoils the low-end is more defined and I hear fundamentals that I never thought were there. Recoils brought new life to my nearfields—they have never sounded so good!"
– Bil VornDick
(Bela Fleck, Alison Krauss)

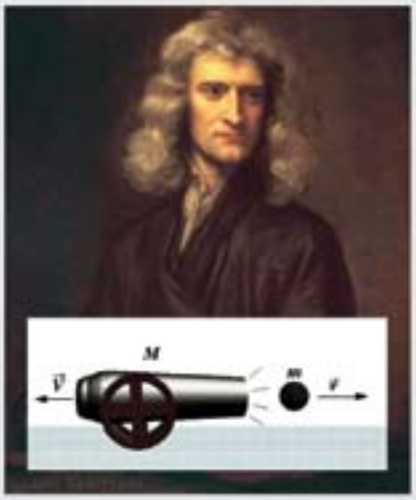
"It really is amazing what a simple little thing like the Recoil Stabilizers can do to a system. Suddenly everything got clearer, punchier and more solid."
– Frank Filipetti
(James Taylor, Foreigner, The Bangles, Elton John)

"The Recoils cleared up a cloudiness in the bass and mid bass that I had been battling in my studio. This is an affordable and very effective problem solving product. I love these things!"
– Ross Hogarth
(Ziggy Marley, Melissa Etheridge, Kobi Mo', Jewel)

"Using the Recoil Stabilizers gave a noticeable improvement in sound, the bottom end is tighter and mixes sound more defined."
– Dave Stewart
(Eurythmics, Stevie Nicks, Tom Petty, Bono, Mick Jagger, Jon Bon Jovi)

"I immediately noticed a huge improvement in the spaciousness of the sound field in my mixes. I love my Recoils... from now on, I'm not going to do a mix without them!!!"
– Bruce Swedien
(Quincy Jones, Michael Jackson, Paul McCartney)

...Had Newton been an audio engineer, he would've used Recoils!



You've bought your new monitors, you put them on your desk and start to mix. However when you listen in your car or on other systems you notice that your mixes are not translating well – they don't sound the same as they did in your studio. Why?

Newton's third law of motion states "Every action is accompanied by a reaction of equal magnitude in the opposite direction."

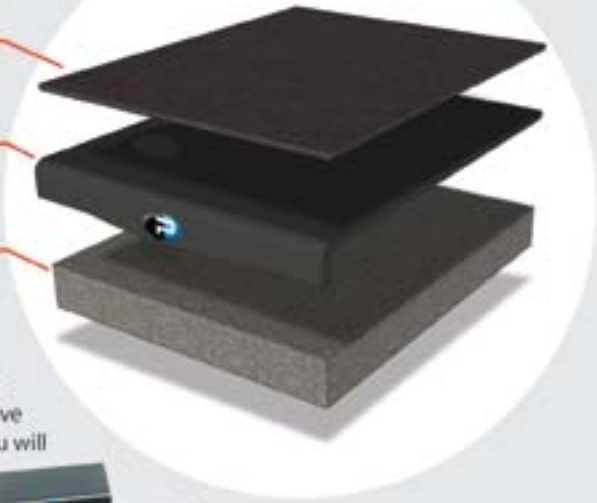
Your loudspeaker works like a piston, constantly pushing and pulling air as the cone is thrust back and forth. The same energy that pushes against the air also vibrates into the desk, causing resonance. This 'comb filtering' effect makes it difficult to mix as it amplifies some frequencies and cancels out others.

Some would say "just isolate the loudspeaker from the desk with a foam pad" but by doing so, you introduce a new problem—your speaker is now swaying back and forth unhindered on the foam, just as Newton said it would. Energy that could be producing a crisp kick or accurate bass is dissipated into the foam and is lost.

Thin, high friction solid rubber pad *cemented to the platform securely connects the speaker with minimum vibrational loss.*

Massive 1/4" laser cut steel plate, *precisely radiused to create an extremely rigid, non-resonant platform for optimal speaker performance.*

Open-cell foam pad *decouples the speaker platform from the desk to eliminate resonance that causes frequency cancellation.*



Enter the Recoil Stabilizer™, a revolutionary device that at once isolates the loudspeaker and adds a massive platform that stabilizes the loudspeaker. At first listen, you will hear the bass tighten up and reach down by as much as an octave. As you listen closer, the mid range will solidify and the top end detail will reveal itself. Simply put, the phase shift and cancellation that have caused inconsistencies in your mixes are eliminated and you can finally hear what your speakers were designed to do.

The Recoil Stabilizer*...
Newton knew it all along!

*Patent pending

There are twelve different Recoil Stabilizers, each calibrated to precisely fit your monitors and mixing environment.

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